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THE

PEDAGOGICAL SEMINARY.

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EDITORIAL.

The contents of this number of the Pedagogical Seminary is somewhat more varied than usual.

In the first article, Mr. Swift has brought together some interesting biographical material, illustrating phases of intellectual development in distinguished men, with certain inferences.

The tame crow Oliver was for ten years an object of great interest to the school children of Westfield. On the basis of data collected by Professor W. S. Monroe, Mr. Bucke tells briefly this story and has in preparation similar data with regard to other animal species, which tend to show how much they mean and how deeply they enter into the life of the young.

The fact that man within his own body is shut up to the narrow range of only ten degrees of variation of heat and to an environment which cannot vary more than one hundred degrees suggests a problem not hitherto treated, viz., how the young are oriented to a heat scale above and below them, ranging through thousands of degrees. The surprises of this study perhaps are the extreme plasticity of the youthful mind as illustrated in what children see in fire and in their extremely diversified conceptions of Jack Frost.

Mr. Elkins gives from personal experience a very vivid picture of the present condition of education in Hawaii, especially interesting in view of the larger conceptions of the relation of higher and lower races now arousing attention.

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Next follows a note on children's cloud fancies, supplemental to Dr. Slaughter's more extended article upon the subject, published in the *American Journal of Psychology* for April, 1902.

Professor W. G. Chambers's article on the evolution of ideals is in some respects a model in the child study field: first, in that he prints a concise and very available digest of all the previous studies, twenty-three in number, upon the subject; second, in that he draws practical lessons of great importance, especially for the education of girls, but also for that of boys, and establishes what is essentially a new and important standpoint for judging of certain educational values. We hope the form and thoroughness of this article in these respects will be a model widely copied.

Professor Monroe makes a very brief but interesting contribution to the musical development of childhood, of practical as well as scientific interest.

The usual number of book notes follow.

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STANDARDS OF EFFICIENCY IN SCHOOL AND IN LIFE.

By EDGAR JAMES SWIFT, Fellow in Clark University.

Various tests for determining mental ability have been suggested at different times but all seem to call for special kinds of ability instead of testing the more fundamental mental endowment. Nor are the several subjects of the school curriculum exceptions since success in them, also, requires particular powers none of which are essential to greatness, as is evident from the fact that there is not one of them in which some man of genius has not been a dunce.

It seemed probable that mental endowment might be more accurately determined by getting the pupils' judgment of an entire situation the interpretation of which would require an estimation of conditions from given relations. For this purpose the two following fables of Æsop were selected together with Pestalozzi's fable of the fishes and the pike.

No. 1. THE BOY AND THE FILBERTS.

A boy once thrust his hand into a pitcher nearly filled with filberts. He grasped as many as his hand could possibly hold; but when he tried to draw out his closed fist, the narrowness of the neck prevented him from doing so. Unwilling to lose his nuts, yet unable to get them by drawing out his hand, he burst into tears and bitterly lamented his hard fortune.

No. 2. THE HORSE AND THE RIDER.

A cavalry officer took the greatest of pains with his horse. As long as the war lasted the horse was looked upon as a companion and fellow-helper. He was carefully groomed every day and fed with oats.

But when the war was over, the allowance of grain and hay ceased and the horse was fed with chaff, and whatever he might find by the wayside. He was made a drudge, too, and often forced to carry loads much too heavy for his strength.

When in course of time, war was again proclaimed, the soldier brought his military trappings, and put them on his horse; and, after putting on his own coat of mail, he mounted to ride to battle.

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But the horse, no longer equal to the burden, fell down straightway under the weight.

No. 3. The Fishes and the Pike.

The fishes in a pond brought an accusation against the pike who were eating them up. The judge, an old pike, said that their complaint was well founded, and that in the future, to make things right, he would allow two ordinary fish every year to become pike.

The school in which the test was made is a ninth grade of the Worcester, Mass., public schools in which the pupils are divided, according to proficiency in their studies, into four sections. Those selected made up the "best" and "poorest" divisions. It will be seen from this that only those who were considered decidedly bright and decidedly dull were included in the test since there were two other divisions, of 36 and 33 pupils each, between the ones chosen. The "best" group contained 33 pupils and the poorest 22. Each fable was read separately and the pupils were asked to write "what they thought of the boy" in No. 1, before either of the others were read; and then of the cavalry officer, after they had heard No. 2; and finally of the plan of Judge Pike in No. 3. The entire test occupied one recitation period.

When the replies had been tabulated the differences due to varying ability, which the school estimate would lead us to expect, did not appear. The two sets of answers were different, but the difference did not indicate an intellectual superiority of the "best" group. The tabulated answers were submitted to a number of university men with the request that they select the set written by the dull division but in no case did they feel that their judgment would be anything more than a guess. In the fable of the "fishes and the pike," which presents conditions the right interpretation of which involves a distinctly intellectual process, the "dull" division excelled the "bright." Twenty-seven per cent. of the latter thought that the plan of Judge Pike was wise and just, while only nine per cent. of the "dull" ones were of this opinion and, again, only fifteen per cent. of the "bright" division replied that the plan would not help the fishes that were not turned into pike, while thirty per cent. of the "dull" group gave this answer.

That the question might be still further tested the fables were submitted to two hundred and thirty-six boys in the Lyman Industrial, reform, school. This included all who could write, and of these twelve were discarded because they were unintelligible. With the exception of these the answers of the boys from the reform school decidedly outranked those from both of the other groups, but especially the ones from the "bright" divi-

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sion in the penetration and versatility that they showed. Fifty per cent. said that Judge Pike's plan would not help the little fishes and one-fourth of these added that it would even make matters worse by increasing the number of pikes to eat them, a point that was made by only one in the "best" division, while among the "dull" pupils the same proportion as in the reform school gave this answer. Twenty-three per cent. of the Lyman school boys thought the plan a good one.

The test was then repeated with other children, the "dullest" and "brightest" of four divisions being selected as before. There were forty in the best section and nineteen in the poorest. Here, too, the replies to the first two fables left those who examined them in doubt as to which group was the "best" but the "dull" ones again led in seeing through the plan of Judge Pike. Thirty-seven per cent. of the former and fifty per cent. of the latter said that it would not help the little fishes while thirty per cent. of the "best" and fifteen per cent. of the "dullest" thought it a good plan.

One thing was decidedly noticeable. The answers from the public school children lacked individuality. They were conventional, while those from the reform school gave evidence of spontaneity and resourcefulness. The question may be seriously raised whether the schools do not train children to stupidity.

A few of the best replies from each group are given below.

1. Best Division.

Girl, 14. "I think he was a very shrewd judge, as soon there would be nothing but pike in the pond."

Boy, 15. "I think the plan of Judge Pike was not a very good one. It not only encouraged the pikes to be more savage but it also tended to make the other fishes inclined that way."

Girl, 13. "I do not think Judge Pike's plan was fair, because the fishes that were made pikes were not any better than their companions and he did not stop the pikes from eating other fishes."

Boy, 13. In my opinion Judge Pike's plan was very poor, for the ordinary fish that became pike, might like certain politicians, when once got in power, treat their former fellows very poorly.

Boy, 14. I think Judge Pike was a sly old fellow, for, of course the small fish would become pike when the pike had eaten them.

Boy, 12. I don't think that that was a very good plan of Judge Pike's, because, after he had changed some of the small fish into pike, there would be more pike to eat up the small fish.

Boy, 13. The two fishes, who would be pike, would be eaten up before their term of office came around.

Girl, 15. Judge Pike is one of the kind that makes the case better for his own side, he's not willing to be fair.

Boy, 14. The pike was foxy by letting two of the small fishes become pike. In this way the pike would be enlarging their numbers, and still more be enlarging the death rate of the smaller fishes.

Girl, 14. "It was a sneaky, cute way to get out of the scrape. His plan was unjust because it was impossible. The plan shows the wit

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of the judge. It was a merciless plan because it had no sympathy for the simple fish."

2. Dull Division.

Boy, 15. "It is easily seen that the judge's plan would help to destroy the common fish as every year there would be more pike to destroy the fish."

Boy, 15. "I think it was not a good plan except for the two who were to become pike and soon all the fish would be pikes, because the pikes would keep on eating little fish and two little fish becoming pikes would exterminate all the little fish."

Boy, 16. "I do not think that the judge was very wise. If two fish were made pikes every year, after a while all the little fishes would be eaten up, and there would be no other kind of fish but pike in the pond."

Boy, 15. When the judge said, "that he would allow two ordinary fish to become pikes," he was thinking of his own fellows rather than the little fish.

Boy, 14. "I think that the pike's decision was more on his own side. By the time the term expired nearly all the old fish would be dead or eaten by the pike."

Girl, 15. I think that the Pike was cruel because he knew that the little fishes were not very bright and he knew that they could not see what he was trying to do.

Boy, 15. "I do not think the old pike was a good judge because if he had two new pikes added every year in course of time the pikes would eat up all the fish in the pond."

Boy, 14. "I think the judge pike was doing something for his own benefit. He was as bad as the other pike because he would eat the fish just the same."

Reform School Boys.

Boy, 14. "I think the judge was out of his head and talking through his hat; he let the fishes become pike so they could eat up the small fishes."

Boy, 14. "The little fishes did not want to be eaten up but when they were pikes they wanted to eat the little fishes up."

Boy, 15. He was crafty in arranging this plan, for the pike could eat fish for a year and then there would be two more pike added to the list of fish-eaters; and the two added would be the most effective; any one who has been in subjection, if suddenly brought to rule will be worse than one that has never been in subjection.

Boy, 14. I think that is a bad plan for if two of the little fishes became pike each year before the year was ended the pike would have them all eaten.

Boy, 13. I think the judge was wrong for when those two fish become pikes they would eat just like the other pikes and so eat the little fish up.

Boy, 15. "This plan of this old pike was a very clever one he thought by doing that he could keep right on eating up these little ones and those two that were to be made pike would pay for it."

Boy, 14. "If that little fish was a big fish he would do the same thing."

Let us see how some eminent men and women have responded to the school test.

Linnæus's gymnasium teachers would have made a cobbler

of him, telling[1] his father that he was unfit for a learned profession. When he went up to the university the director gave him this certificate. "Youth at school may be compared to shrubs in a garden, which will sometimes, though rarely, elude all the care of the gardener, but if transplanted into a different soil may become fruitful trees. With this view, therefore, and no other, the bearer is sent to the university, where it is possible that he may meet with a climate propitious to his progress." And the director's only claim to fame is that he wrote this note.

"During my whole life," says Charles Darwin in his autobiography, "I have been singularly incapable of mastering any language. . . . . When I left the school I was for my age neither high nor low and I believe that I was considered by all my masters and by my father as a very ordinary boy, rather below the common standard in intellect. To my deep mortification my father once said to me, 'you care for nothing but shooting, dogs, and rat-catching, and you will be a disgrace to yourself and all your family,"[2] Dr. Butler, the head master, once rebuked him for wasting his time on such subjects as chemistry, but no one would have heard of the Doctor had not Darwin rescued him from the dark waters of oblivion by pulling him into his autobiography.

Harriet Martineau's parents considered her mind dull and unobservant and unwieldy.[3] Though a born musician, "never known to sing out of tune," she could do nothing in the presence of her irritable master, Mr. Beckwith. "Now and then he complimented my ear," she tells us, "but he oftener told me that I had no more mind than the music-book, ... and that it was no manner of use trying to teach me anything. All this time, if the room door happened to be open without my observing it when I was singing Handel by myself, my mother would be found dropping tears over her work, and I used myself, as I may now own, to feel fairly transported."[4]

"I was the first of my family," she continues, "who failed in the matter of hand-writing; and why I did remains unexplained. I am sure I tried hard; but I wrote a vulgar, cramped, untidy scrawl till I was past twenty;—till authorship made me forget manner in matter and gave freedom to my hand. . . . . It was a terrible penance to me to write letters home from Bristol; and the day of the week when it was to be done was very like the Beckwith music-lesson days. If any-

[1] Famous Men of Science, by Sarah K. Bolton.
[2] Life and Letters, pp. 29-30.
[3] Autobiography, edited by Maria Weston Chapman, 1877, Vol. I, p. 27.
[4] *Loc. cit.*, Vol. I, p. 42.

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one had told me then how many reams of paper I should cover in the course of my life, life would have seemed a sort of purgatory to me." [1]

Miss Martineau speaks interestingly of a visit to some cousins when she was about 16 years old. "I still think," she tells us, "that I never met with a family to compare with theirs for power of acquisition, or effective use of knowledge. They would learn a new language at odd minutes; get through a tough philosophical book by taking turns in the court for air; write down an entire lecture or sermon, without missing a sentence; get round the piano after a concert, and play and sing every new piece that had been performed. Ability like this was a novel spectacle to me; and it gave me the pure pleasure of unmixed admiration; for I was certainly not conscious of any ability whatever at that time." [2] Yet these cousins are known to-day only from a page in the autobiography of the timid, backward girl who sat unnoticed in the drawing room shadows made gloomier by contrast with the brilliancy of their precocious minds.

Napoleon Bonaparte does not seem to have distinguished himself in any of his studies at the military school in Paris, unless, perhaps, in mathematics. In the final examination for graduation he stood forty-second in his class.[3] Who were the forty-one above him? "Neither he nor his sister Eliza, the two strong natures of the family, could ever spell any language with accuracy and ease, or speak and write with rhetorical elegance." [4] Napoleon's laxity in matters of military discipline after he joined the artillery is astonishing in view of his later success, and in 1789 he fully decided to withdraw from the service.[5]

William H. Seward's teacher once reported to his father that he was too stupid to learn.[6] Like his classmates Seward used to while away the tedium of Dr. Wayland's Homer recitation by reading novels.

Patrick Henry "was too idle to gain any solid advantage from the opportunities which were thrown in his way. He was passionately addicted to the sports of the field, and could not support the confinement and toil which education required. Hence, instead of system or any semblance of regularity in his studies, his efforts were always desultory and became more and

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[1] *Loc. cit.*, Vol. I, p. 69.
[2] *Loc. cit.*, Vol. I, p. 71.
[3] Life of Napoleon Bonaparte, by William M. Sloane, 1896, Vol. I, p. 33.
[4] *Loc. cit.*, Vol. I, p. 36.
[5] See *loc. cit.*, Vol. I, p. 48.
[6] Autobiography, 1877, p. 22.

more rare until at length, when the hour of his school exercises arrived, Patrick was scarcely ever to be found."[1] Instead, he went fishing and hunting for days and weeks at a time. His biographer, Wirt, could not learn "that he gave, in his youth, any evidence of that precocity which sometimes distinguishes uncommon genius. His companions recollect no instance of premature wit, no striking sentiment, no flash of fancy, no remarkable beauty or strength of expression; and no indication, however slight, either of that impassioned love of liberty, or of that adventurous daring and intrepidity, which marked so strongly, his future character. So far was he, indeed, from exhibiting any one prognostic of this greatness, that every omen foretold a life, at best of mediocrity, if not of insignificance. His person is represented as having been coarse, his manners uncommonly awkward, his dress slovenly, his conversation very plain, his aversion to study invincible, and his faculties almost entirely benumbed by indolence. No persuasion could bring him either to read or to work. On the contrary, he ran wild in the forest, like one of the aborigines of the country, and divided his life between the dissipation and uproar of the chase and the languor of inaction."[2]

Started in business as a merchant by his father his indolence brought speedy failure. Married at 18 without any means of support his father and father-in-law came to his aid with a little farm, the work of which he so hated that relief soon came in failure. Another attempt at business, followed by bankruptcy, and he determined, *as a last hope*, to try law. Yet neither he nor his friends seem to have had any confidence in his success. But the rest of his life is our country's history.

At twelve years of age Sir Isaac Newton, as he himself tells[3] us, was at the foot of his class. At that time he showed neither ability nor industry. Even in one of his university examinations in Euclid he made so poor a showing as to get the disapproval of his examiner.[4]

The corporals for the West Point companies were selected from the sophomore class "for their military bearing and qualifications"[5] and Grant was not chosen. In the junior class, from which the sergeants were taken, he was the last but one of eighteen who were selected, and he adds, "the promotion

[1] Sketches of the Life and Character of Patrick Henry, by William Wirt, 1852.
Patrick Henry, by Moses Coit Tyler, 1887.
[2] Sketches of the Life and Character of Patrick Henry, by William Wirt, Vol. I, p. 24.
[3] Sir David Brewster's Memoirs of the Life, Writings and Discoveries of Sir Isaac Newton, 1855, Vol. I, p. 7.
[4] King's Biographical Sketch of Sir Isaac Newton, p. 21.
[5] U. S. Grant: Personal Memoirs, 1885, Vol. I, p. 40.

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was too much for me. That year my standing in the class, as shown by the number of demerits of the year, was about the same as it was among the sergeants, and I was dropped, and served the fourth year as a private."[1] In his class work Grant was never above mediocrity and he was not a leader among his classmates, nor did he seek to become one. He graduated number twenty-one and was delighted to get even that place.[2]

Samuel Johnson was indolent. "My master," he once said,[3] "whipt me very hard. Without that, sir, I should have done nothing."

"Swift's college course was entirely without brilliancy or promise; in his last term examination he failed in two out of the three subjects"[4] and he was refused his degree because of "dullness and insufficiency." He was finally allowed to take it only by "special favor."[5]

When the Duke of Wellington was a boy his speech was thick and slow so that he appeared stupid. Even later, at the Military College of Angiers, his record was in no way unusual.[6]

Wordsworth's[7] university career grievously disappointed his friends, and up to about twenty-five years of age he shifted aimlessly from one thing to another, causing his friends endless anxiety because of his seeming inability to settle down to any regular work. As a boy in school he made but little progress, spending his time chiefly in reading Gulliver's Travels, Don Quixote, Tales of a Tub, Fielding's Works, Gil Blas and other similar books and he considered that the chief merit of his school was that it did not interfere with his reading.

Richard Brinsley Butler Sheridan was indolent in school and ranked correspondingly low. Dr. Parr, his language teacher at Harrow, says[8] that "there was little in his boyhood worth communication, he was inferior to many of his school fellows in the ordinary business of a school, and I do not remember any one instance in which he distinguished himself by Latin or Greek composition, either in prose or verse." . . . . He was "not only slovenly in construing, but unusually defective in his Greek grammar." Dr. Parr's Greek and Latin prose was

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[1] *Loc. cit.*, Vol. I, p. 41.
[2] General Grant, by James Grant Wilson, p. 37.
[3] Boswell's Life of Johnson, Vol. I.
[4] The Prose Works of Jonathan Swift, with a Biographical Introduction, by W. E. H. Lecky, 1897, Vol. I, Introduction, p. xiv.
[5] Leslie Stephens's Jonathan Swift, English Men of Letters, p. 5.
[6] See Life of Wellington, by Sir Herbert Maxwell, London, 1899.
[7] William Wordsworth, the Story of his Life, by James Middleton Sutherland, London, 1887.
William Wordsworth, a Biographical Sketch, by Andrew James Symington, Vol. I.
[8] Memoirs, by Thomas Moore, Vol. I, p. 12.

doubtless admirable but he is known only as the teacher under whom Sheridan could not succeed. To his teachers at Harrow he was remarkable in nothing but his idleness and winning manners.[1]

Robert Fulton[2] was a dullard because his mind was filled with thoughts about other things than his studies, but his teachers could not understand this and so the birch rod became a frequent persuader.

Alexander von Humboldt's childhood gave no promise for the future. He "was a feeble child and had less facility in his studies than most children."[3] "Until I reached the age of sixteen," he says,[4] "I showed little inclination for scientific pursuits. I was of a restless disposition, and wished to be a soldier. This choice was displeasing to my family, who were desirous that I should devote myself to the study of finance, so that I had no opportunity of attending a course of botany or chemistry; I am self-taught in almost all the sciences with which I am now so occupied, and I acquired them comparatively late in life." At nineteen years of age he had never heard of botany.[5]

Heine made a poor showing at school, His mind was too keen and alert for him to excel in the imitative class work. The dates in Roman history were an unceasing annoyance though, as he tells us, he afterward came to appreciate their value because he has since known people with "nothing in their heads but a date or two by the help of which they have found the right houses in Berlin and become full professors,"[6] but "reckoning was worse yet," while as to Greek, "the monks of the Middle Ages were not so far wrong when they declared that it was an invention of the devil. God knows what misery I suffered with it."[7] He hated French meters and could not write their verses, so his teacher vowed he had no soul for poetry and called him a barbarian from the German woods.[8] He idled away his time at Bonn and was "horribly bored" by the "odious, stiff, cut and dried tone" of Göttingen

[1] *Loc. cit.*, p. 11; Speeches of Sheridan with a Sketch of his Life, London, 1842.

[2] The Life of Robert Fulton, by Thomas W. Knox, 1886.

[3] Address on Alexander von Humboldt, by Louis Agassiz, Boston Society of Natural History, 1869.

Robert Fulton; His Life and its Results, by Robert H. Thurston.

[4] Life of Alexander von Humboldt, by Karl Bruhns, 1873, Vol. I, p. 26.

[5] Bruhn's and Lassell's Life of Alexander von Humboldt, Vol. I, p. 26.

Sarah K. Bolton's Famous Men of Science, pp. 110-111.

[6] Heine's Life, told in his own words, New York, 1893, p. 11.

[7] *Loc cit.*, p. 12.

[8] See *loc. cit.*, p. 15.

University. Nothing pleased him. The professors were more leathery than at Bonn, so he busied himself a good deal with students' duels. "It amuses me," he says, "for want of something better; and it is at least better than the wet rags of teachers, young and old, of our Georgia Augusta."[1]

Joseph Banks's hatred for the monotony of school routine was so marked as to bring complaint from his teachers. Yet it was not dislike for work; he simply could not travel the road by which alone the educational doctors would permit him to reach the golden gate. One day when he came out of the water in which he had been bathing he found his companions gone and, after dressing, he walked slowly home along a meadow-path fringed on either side with fragrant flowers. Life had never shown such charms and he exclaimed, "How beautiful! Would it not be far more reasonable to make me learn the nature of these plants than the Greek and Latin I am confined to."[2]

In her early days George Eliot was not precocious. It was with some difficulty that she learned to read, though her brother Isaac, with pardonable pride, thought that this was because she enjoyed playing so much more than studying.[3] "Hers was a large, slow-growing nature;" says her husband, "and I think it is, at any rate, certain that there was nothing of the infant phenomenon about her."[4]

Nansen was reported by his masters as "unstable" in his studies and his brothers and sisters called him a "dawdler."[5]

Sir Walter Scott[6] never took very kindly to the school pabulum but, instead, read great quantities of poetry and fiction.

In one of his letters George Combe says, "when a boy I never could learn arithmetic. At the end of five years of teaching I could not subtract, divide, or multiply any considerable number of figures with accuracy and facility, and cannot now do so. . . . . I recollect well that when at school arithmetic and algebra appeared to me to be impenetrable mysteries, and I often wondered why, in regard to them, I was so inferior to other boys whom I equalled in other branches of education."[7] But languages went no better.

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[1] *Loc. cit.*, p. 127.

[2] The Works of Henry Lord Brougham and Vaux, Vol. I, p. 337.

[3] George Eliot's Life as related in her Letters and Journals, edited by J. W. Cross, Vol. I, p. 11.

[4] *Loc. cit.*, Vol. I, p. 11.

[5] Fridtiof Nansen, by W. C. Brögger and Nordhall Rolfsen, translated by William Archer, 1896.

[6] Sir Walter Scott, the Story of His Life, by R. Shelton MacKenzie, 1871.

[7] Life of George Combe, by Charles Gibbon, London, 1878, Vol. II, p. 381.

John Hunter, the celebrated anatomist and surgeon, could neither read nor write at 17 years of age, so great was his hatred for school; but he enjoyed keenly all out of door sports. He was called indolent and he himself tells why. "When I was a boy I wanted to know about the clouds and the grasses, and why the leaves changed color in the autumn; I watched the ants, bees, birds, tadpoles and cadis worms; I pestered people with questions about what nobody knew or cared anything."[1] In his unappreciated condition of learned ignorance he just missed becoming a cabinet maker through the fortunate failure in business of his brother-in-law in whose carpenter shop he was working.

Charles Lyell tells[2] us that, when a boy, he had an excessive aversion to work unless forced to it.

A book by Gesner, the Swiss naturalist, with colored plates, seems to have been the touchstone which united in Cuvier the disconnected powers of which he himself was, at best, but dimly conscious, and made them active. The works of Buffon did the rest.[3]

Hegel[4] never distinguished himself in the lower schools and on leaving the university of Tübingen his certificate stated that he was of middling industry and knowledge but especially deficient in philosophy.

Dr. Cardew, in whose school Sir Humphrey Davy was placed at 14 years of age, says[5] that while he was always faithful in the performance of school duties he did not at that time show any extraordinary ability nor any special talent for those scientific pursuits in which he afterward became so eminent. He kept the good Mr. Tonkin in constant terror by explosions in the attic where he was playing with chemicals. "This boy Humphrey is incorrigible," cried the old gentleman one day; "was there ever so idle a dog?"[6] At the Coryton Grammar School he "had the reputation of being an idle boy, with a gift for making verses, but with no aptitude for studies of a graver sort."[7] Indeed, at no time during his boyhood does he seem to have given any indication of superior talent or unusual quickness.[8] It is interesting to learn that later in life Davy consid-

[1] Two Great Scotsmen, the Brothers William and John Hunter, by George R. Mather, Glasgow, 1893, p. 120.
[2] Life, Letters and Journals of Sir Charles Lyell, edited by his sister-in-law, Mrs. Lyell, London, 1881.
[3] Memoirs of Cuvier, by Mrs. R. Lee, New York.
[4] William Wallace in Encyclopædia Britannica.
[5] Memoirs of the Life of Sir Humphrey Davy, by his Brother John Davy, London, 1836, Vol. I, p. 20.
[6] Kings of the Rod, Rifle and Gun, by Thormanby, 1901, Vol. I, p. 300.
[7] *Loc. cit.*, p. 299.
[8] The works of Henry Lord Brougham and Vaux, 1873, Vol. I, p. 108.

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ered it fortunate that he was left so much to himself as a child, and held to no particular plan of study, and that he was allowed to enjoy so much idleness at Mr. Coryton's school.[1]

At the Aberdeen Grammar School Byron reached the head of his class "for it was the custom there to invert the proper order of the classes at the beginning of the lesson, so that the most ignorant were for the moment placed first; and more than once the master said,[2] bantering him, 'Now George, man, let me see how soon you 'll be at the foot.'" At Trinity College, Cambridge, "he was never anything but a poor scholar, bestowing little care on the studies of the place."[3]

It is interesting to learn that so clever a writer as Huxley "detested the trouble of writing, and would take no pains with it"[4] till long past twenty years of age. "My regular school training," he tells us, "was of the briefest, perhaps fortunately, for though my way of life has made me aquainted with all sorts and conditions of men, from the highest to the lowest, I deliberately affirm that the society I fell into at school was the worst I have ever known. We boys were average lads, with much the same inherent capacity for good and evil as any others; but the people who were set over us cared about as much for our intellectual and moral welfare as if they were baby farmers."[5]

In the boys military school Schiller did not show any proficiency in philosophy, rhetoric, or law. Greek seems to have been the only study in which he excelled.[6] In one of his school reports we find that "Schiller has abundance of good-will, and shows great desire to learn; his negligence and lack of alertness, however, call for repeated reproof. He is sensible of his faults, and strives to correct them."[7] He took only one prize in six years, and that was in Greek, "although annually a goodly proportion of rewards was distributed."[8] His final thesis was not satisfactory and he was not allowed to leave the institution that year.

James Russell Lowell was reprimanded, at first privately and then publicly, in his sophomore year, "for general negligence in themes, forensics and recitations."[9] His relatives grieved at his "indolence" and on the 25th day of June, 1838, the

[1] Kings of the Rod, Rifle and Gun, 1901, Vol. I, p. 299.
[2] The Life of Lord Byron, by Roden Noel, London, 1890, p. 33.
[3] *Loc. cit.*, p. 54.
[4] Life and Letters, Vol. I, p. 22.
[5] *Loc. cit.*, p. 5.
[6] The Life of Schiller, by Heinrich Düntzer, translated by Percy E. Pinkerton, London, 1883, pp. 42, 45.
[7] *Loc. cit.*, p. 41.
[8] *Loc. cit.*, p. 41.
[9] James Russell Lowell, a Biography, by Horace Elisha Scudder, 1901, Vol. I, p. 30.

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college faculty voted that he be suspended "on account of continued neglect of his college duties." During this period of rustication he was required to review Locke's Essay on the Human Understanding and study Mackintosh's Review of Ethical Philosophy with a tutor, reciting twice a day.[1]

Oliver Goldsmith's teacher, in his early childhood, thought him one of the dullest boys that she had ever tried to teach and she was afraid that nothing could be done with him.[2] Later in his school course he made no unusual progress and was considered careless and indolent. His indolence and dislike for his university tutor, who called him ignorant and stupid before his classmates, combined to make him hate mathematics, sciences and philosophy. "A lad," he says, "whose passions are not strong enough in youth to mislead him from that path of science which his tutors, and not his inclinations, have chalked out, by four or five years' perseverance will probably obtain every advantage and honor his college can bestow. I would compare the man whose youth has been thus passed in the tranquility of dispassionate prudence, to liquors that never ferment, and, consequently, continue always muddy."[3]

His family felt keenly his failure to take a prominent place in the university. "The first opportunity my father had of finding his expectations disappointed," he tells us, "was in the very middling figure I made at the university: he had flattered himself that he should soon see me rising into the foremost rank in literary reputation, but was mortified to find me utterly unnoticed and unknown. His disappointment might have been partly ascribed to his having overrated my talents and partly to my dislike of mathematical reasoning, at a time when my imagination and memory, yet unsatisfied, were more eager after new objects, than desirous of reasoning upon those I knew. This, however, did not please my tutors, who observed, indeed, that I was a little dull, but at the same time allowed that I seemed to be very good natured, and had no harm in me."[4]

When William Hamilton Gibson was a boy we find his teacher Mr. Gunn writing home, "Willie insists that he is getting along finely in his studies, that he studies very hard, and is doing well. But you must accept this with some grains of allowance for a boy's favorable judgment of himself. He does not learn as fast as I wish to have him." Fortunately, however, the good Mr. Gunn knew more about boys than many teachers and so he added, "I think his tendency to take on fat hinders his

[1] See *loc. cit.*, Vol. I, p. 47.
[2] See Irving's Life of Goldsmith, p. 19.
[3] Irving's Life of Goldsmith, p. 32.
[4] Letters from a Citizen of the World, Bohn's Library edition, p. 100.

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power of industrious, persevering application."[1] Young Gibson was reprimanded[2] by his father for wasting his time at school in illustrating his letters home with pen-and-ink sketches and he promised that he would never again do such a foolish thing.

"My mother taught me my letters," says William James Stillman, "before I could articulate them; when I was two I could read, and at three I was put on a high stool to read the Bible for visitors, so that I cannot remember when I could not read, and when not more than five or six I used to be at the head of the spelling classes and spelling matches, in which all the boys and girls were divided into equal companies, and the teachers gave out the hardest words in the spelling-book to each side in turn, all who failed to spell their word sitting down, until the solitary survivor on one side or the other decided the victory, and even before I was seven I was generally that survivor. I read insatiably all the good story-books they would let me have, and I cannot recall the time at which there was anything even in the Bible new to me. With an incipient passion for nature and animal life, I read with delight all the books of natural history I could get, and I have heard in later years that in all the community of Sabbatarianism I was known as a prodigy. Fortunately I was saved from a probable idiocy in my later life by a severe attack of typhoid fever at seven, out of which attack I came a model of stupidity, and so remained until I was fourteen, my thinking powers being so completely suspended that at the dame's school to which I was sent I was repeatedly flogged for not comprehending the simplest things. I got through simple arithmetic as far as 'Long Division,' and there I had to turn back to the beginning three times before I could be made to understand the principle of division by more than one figure.

In the humiliation of this period of my life, in which I came to consider myself as little better than a fool, my only consolation was the large liberty I enjoyed in the woods and fields with my father on Saturdays, or with my brothers Charles and Jacob on their long botanizing excursions, or in the moments of leisure when I was not wanted to turn the grindstone or blow the bellows in the workshop."[3]

He was now about eleven years of age and the intellectual dullness had not lessened. "I left the dame's school," he continues, "where the rule of long division proved my *pons asinorum*, and went to a man's school, where I earned my schooling by making the fires and sweeping the schoolroom, and

[1] William Hamilton Gibson, by John Coleman Adams, 1901, pp. 15-16.
[2] *Loc. cit.*, p. 16.
[3] The Autobiography of a Journalist, by William James Stillman, 1901, Vol. I, pp. 27-28.

here I learned some Latin and the higher rules in arithmetic by rote, always with the reputation of a stupid boy, good in the snowball fights of the intermission, when we had two snow forts to capture and defend; in the running foot races the speediest, and in backhand wrestling, the strongest, but mentally hopeless."[1]

Later, when sent to a New York school founded by the Public School Society, "my mental apathy must have been still very profound, for I remember that it often happened that when a question which had passed other pupils came to me in the class, the senior monitor," one of the paid teachers, "used to address me, 'well, stupid, what do you say?' I evidently was the most stupid boy in the class—nothing seemed to penetrate my mental dullness, but, having grown tall and strong for my age, I was often made 'yard monitor,' to keep order during the physical training."[2]

Meanwhile his brother Jacob had taken charge of a school in DeRuyter, New York, and he was sent there to prepare for college. But "the persistent apathy which had oppressed me for so many years," he continues, "still refused to lift, and my stupidity in learning was such that my brother threatened to send me home as a disgrace to the family. I had taken up Latin again, algebra and geometry, and though I was up by candle-light in the morning, and rarely put my books away till after ten at night, except for meals, it was impossible for me to construe half of the lesson in Virgil, and the geometry was learned by rote. I at length gave up exercise to gain time for study, and my despairing struggles were misery. I was then fourteen, and in the seventh year of this darkness, and it seemed to me hopeless.

What happened I know not, but about the middle of the first term the mental fog broke away suddenly, and before the term ended I could construe the Latin in less time than it took to recite it, and the demonstrations of Euclid were as plain and clear as a fairy story. My memory came back so completely that I could recite long poems after a single reading and no member of the class passed a more brilliant examination at the end of the term than I."[3]

Priestley's "whole education was exceedingly imperfect, and excepting in Hebrew and in Greek he never afterwards improved it by any systematic course of study. . . . . 'When I began my experiments,' he tells us 'I knew very little of chemistry, and had, in a manner, no idea of the subject before I attended a course of lectures at an academy where I taught."[4]

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[1] *Loc. cit.*, Vol. I, pp. 42-43.
[2] *Loc. cit.*, Vol. I, p. 54.
[3] *Loc. cit.*, pp. 59-60.
[4] The Works of Henry Lord Brougham and Vaux, 1873, Vol. I, p. 70.

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In the Nikolaischule at Leipzig, says Richard Wagner, "I was relegated to the 'third form' after having already attained to the 'second' in Dresden. This circumstance embittered me so much, that thenceforward I lost all liking for philological study. I became lazy and slovenly."[1]

It is a pity that some precursor of Porter did not happen along to take the physical measurements of these boys and girls so that he might have given us an essay on the close connection between mental ability and physical development. Unfortunately, in these comparisons, the individuals are unnamed and so lost in the mass; for this reason the school test of ability has gone unchallenged though history continually refutes it.

The problem of development is not so simple as the schoolmaster with his universal "method" would have us believe. He has settled upon certain "essentials" for mental growth, or rather they have come down to him from different periods since the middle ages, and he has seen that their "necessity" is wrapped up in the nature of things and so he uses up much energy in keeping children of widely varying endowments in the pedagogical trail. Meanwhile the Patrick Henrys laugh at him in their indolence, the Wordsworths give thanks that he left them alone and the John Hunters literally take to the woods. And, as if to cap the climax, one of the most eminent among them finds nothing in Richard Sheridan's boyhood "worth communication."

There seems to be a substratum of ability[2] which, in its undeveloped state, appears not to differ greatly in children and which is more fundamental than the special, accessory powers that rise from it. The expansion of this deeper mentality, with its unquestionably varying individual possibilities, is the chief function of school during early childhood. It is more than any talent because it includes them all, and well rounded manhood, the proverbial "level head," depends on its symmetrical and unarrested growth. As common sense it deals quite effectively with problems of life and with many complex questions of utility. Not infrequently the dullard in the school is the one to whom we listen in an emergency, and this is partially due, at any rate, to a fundamental difference in the manner in which children get and interpret experience. In some experiments which the writer has been making in the psychology of learning it has been continually evident that the visual, auditory and motor minded only imperfectly share in the experi-

[1] Prose Works of Richard Wagner, translated by William Ashton Ellis, London, 1899, Vol. I, p. 5.

[2] See The Child, A Study in the Evolution of man, by Alexander F. Chamberlain, Chap. III.

ences of one another, and, in some instances, such participation is absolutely impossible. Motor mindedness seems to be one of the causes of "dullness." The teacher of one of the "dull" divisions included in the tests of the first part of this paper says that these children are the best to bring specimens and they know more about the life of animals and plants than her "best" division. They all seem to want to know how things are done and they can always be relied upon to do anything requiring action. In the other "dull" group several are greatly interested in animals and have pets. Three others like to work in electricity and one of these is absorbed in it. He goes to the electric car barn to study the plant, crawls under the cars to examine the motor, and frequently runs the cars.

Manual training, which it was thought would meet the needs of such children, early caught the pedagogic disease of form, and the thing made, which is what children are always interested in, has had to yield to the process; the content is lost in the form, and consciousness of details is forced upon children at a time when they should think only of results and revel in the enjoyment of what they have done.

A professor in one of our eastern universities tells me that when a boy his power of visualization was so strong that he could read a book through the night before his examination and the next day, as he wrote, he could see any page in detail on his desk before him. His answers were thus almost copies of the text. At the end of three months of Euclid he received a mark of about five on a scale of one hundred. He then began to read it over the night before the examination and at once brought his mark up to seventy because of his ability to visualize, though, as he himself says, he never had any mathematical ability.

Another, a university student, when a boy could visualize the entire work of any arithmetical problem that had been put on the blackboard.

It is needless to speak of the great disadvantage at which a motor-minded boy works with such classmates, especially when we remember that school work is carried on in such a manner as to distinctly favor the visual and auditory minded. It may be said that these cases are exceptions but this is true only in the degree of their power. The important point is that children differ greatly in their way of getting and utilizing experience and so dullness may express nothing more than the inability of children to immediately change their mode of reacting to the external world.

A public school superintendent tells the writer that a seven year old boy had been in the first grade two years because, as his teacher said, he was too dull to go on. The superintendent

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placed him under another teacher and at the end of the year he was leading his class. In the first school a phonetic method was used and as this boy could not get auditory images he made no progress. As soon as a visual method was employed he became bright.

Then, too, young children want to construct, and analysis at this time makes them conscious of the process when they should be learning unconsciously by absorption. Later the spirit of analysis develops and they want to know how and why they do things. Unfortunately, school work is almost wholly analytic. Even those subjects like language, drawing and manual training that should least of all be analyzed at the beginning are treated in the same consciously critical way. The result is the stiffness that always accompanies consciousness of the process, and hatred for the work. English has been analyzed until its exposure has robbed it of beauty. Life outside of school is pre-eminently synthetic and failure to recognize this gives force to the claim that the schools are unpractical, and children whose minds are especially synthetic suffer by comparison with those that take naturally to analysis. And, finally, both types are arrested in their development because the demands of different periods of childhood are not recognized and because the need for constructive training is overlooked in the excessive confidence in the value of analysis.

We have accepted too readily the verdict of school studies. They require a certain specialized ability, just as do puzzles, but it does not follow that those who cannot do them successfully are dull. The range of human experience and activity is not exhausted by the curriculum, and the number of men who have become eminent without initiation into its mysteries shows that its badge of membership is not altogether necessary for success. Life cannot be interpreted in terms of English grammar, Latin or mathematics in spite of those who insist that a boy must parse his way to worldly salvation.

Precocious mental development is not always permanent. It is well known that aboriginal children learn quite as readily as children of European parentage, but it does not last. Mathew says that "for three consecutive years the aboriginal school at Remahyack, in Victoria, stood the highest of all the state schools of the colony in examination results, obtaining 100 per cent. of the marks, but the limit of the natives' range of mental development is soon reached."[1] The aboriginal children of the Andaman Islands, also, keep pace in the schools with children of European parents until they are ten or eleven

[1] Review in Nature, Vol. XLIII, 1890, p. 185, of Report in Jour., and Proc. of the Royal Society of New South Wales, Vol. XXIII, part 2.

years old but at this point their mental development seems arrested.[1] Pilling[2] assures us that the children of the Cherokee Indians learn to read in two and one-half months, using a sort of syllabary invented by a half-bred Cherokee, "the son of a Dutch pedlar and Cherokee mother, an illiterate vagabond," who, according to reports, could read neither his own nor any other language. Stetson[3] tested the memory of five hundred colored and five hundred white children in the Washington public schools and got practically the same result with both groups.

The power beneath that in which a potentially strong mind excels and which is truest to its nature rarely lies near the surface. The boy himself is usually not conscious of it. Excellent mental endowment often differentiates slowly but, unfortunately, there is every reason for believing that its expansion is very often unnaturally delayed by the narrowness of the enclosure within which the curriculum holds it. But just as native indolence saves children from the pernicious good intentions of their teachers, so the waywardness of the mind, which makes it jump fences and seek new pastures, more alluring, perhaps, because the manner in which they shall be nibbled has not been settled by ancestral convention, comes to their aid and saves many from permanent arrest.

The contention that it was, after all, being compelled to study the subjects in the course that made the men referred to in this paper great, is hardly admissible since, in most cases, they simply did not study them. According to the school standards they were negligent, indolent and dull, but theirs was too large a nature to be satisfied with a narrow range. In their seeming indolence and mental instability they were testing themselves, not consciously it is true, but in response to vague organic promptings. It is likely to be the superficially precocious, whose mental endowment is not very selective and so incapable of the loftier moods or greater intellectual achievements, who can adapt themselves without inward discontent to a prescribed and confined course. The others are restless in constraint. Their minds call for a greater variety and more freedom to do things in their own way. It is a sort of psychic ebullition and each new bubble is a point of contact with the struggling mind below. This is the teacher's chance. He should help children to learn to know themselves, and the hottest place in the seething caldron is the point of greatest efficiency at that moment. Good boys, who easily fit into the

[1] See The Aboriginal Inhabitants of the Andaman Islands, by Edward Horace Man, London, 1883, p. xxi.
[2] Am. Anthropol., Vol. VI, p. 183.
[3] Psychological Review, Vol. IV, 1897, p. 285.

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school mould and always do just what their teachers desire, rarely seethe; they only sizzle.

To find out how students to-day feel regarding the school's attitude toward them, a few questions were asked of the older pupils in five normal schools, each in a different State. One hundred and seventy out of four hundred and fifty-three said that their teachers did not help them find out their strong and weak points, and only one hundred and fifteen said unreservedly that they did. Of the rest some thought that one or two teachers aided them. In many cases this seems to have been in the subjects that the teachers themselves especially liked. Ninety-five said that their teachers tried to find out what their ideals were and appealed to them, while two hundred and thirty-nine replied that no interest was taken in them individually. The others, again, said that in a few instances the teacher's personal influence was felt.

In a large proportion of cases the school seems to have exerted little or no influence except through the medium of the recitation. While there are, unquestionably, many exceptions, teachers too often stand apart from their pupils, conducting the recitation well, perhaps, but as something wholly external to themselves and the pupils. Throughout there is lack of the personal element. Most of those who thought that they had been helped outside of their classes felt that the chief benefit after all came from their schoolmates. The pedagogue is too much inclined to assume an attitude of superior indifference to life. Latin, mathematics, grammar and geography, he seems to think, ought to develop children's ability and so fit them to meet life's problems. If they don't, why then there is something the matter with the boy.

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OLIVER, THE TAME CROW.

By W. Fowler Bucke, in Clark University.

Will S. Monroe, of the Normal School at Westfield, Mass., has made a collection of essays written under his direction, by the children in the grades, from the fifth to the eighth inclusive, upon the subject: "Oliver, the Tame Crow of Westfield." With no further suggestion from the teachers the children were given thirty minutes in which to write. As the result of this effort and a subsequent presentation giving a careful history of the crow and an able analysis of the essays, made by Mr. Monroe, together with valuable criticisms and suggestions by Dr. Hall, upon our study of the essays, we are able to present the following analyses:

The facts as gathered from the original owners are that Oliver was born in June, 1890; and brought from the nest to the farm when very young. He was placed in a dark, quiet room as a means of training him to talk. Although considered stupid, his first words were "Hello" and "Dick White," the latter being his original name. He was next taught to say "Good Morning." His food consisted of potatoes only. Having made slow progress he was released; and the effort to teach him given up. He roamed at large about the farm, but made surprising progress in the imitation of words heard. Horace, for many years an employee on the farm was Oliver's favorite. When Horace was called from the field to the house Oliver repeatedly attempted to imitate the call with "Wa! wa!" as the result. He afterwards continued to repeat this with the prefix "Hello." "Oliver" was the children's understanding of the word which gave him that name. It is believed that he recognizes the original name, "Dick White," however, when he hears it. The crow always called his owner "Bill" although his name was William, as he learned this by imitation of William's brother, who always called him Bill. Among his mischievous pranks were those of hiding the pipe of the hired man, and stealing bright objects such as thimbles, coins, button hooks, etc. He disliked other crows, but having been with the farmer for three years an effort was made to tame the second crow. The new one having made peculiar noises, Oliver flew away never to return closer than to a cluster of trees a few rods distant. Since this time he has lived at large, and has

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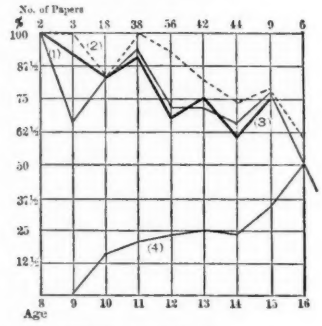
been cared for by any who may be sufficiently interested to give him food. His favorite resorts are the main streets, and the school and play grounds during sessions of school. He thus shows a fondness for company, and a special attachment to the children.

Two hundred and forty-four essays were written, representing the boys by a majority of four. These children of Westfield represent "the better element of a fixed New England town." They had grown up with the bird, and all but one knew Oliver, who had been in town about ten years when the papers were written. All are more or less impressed with his power to use language, and imitate expressions, as well as to understand what is said to him. The accompanying table shows how this power was reported in the essays, giving at the top the number of pupils at the bottom their ages, respectively. It must be noticed that the few reports given by children at the ages of 8, 9, 15 and 16 would modify the normal direction of the curve. Those who assign a reason for the power to talk, give in every case that his tongue was split. This is shown by a curve, using the same co-ordinates. It will be interesting to note that cause does not concern the younger children, but becomes more and more in evidence, as they advance in years. (No evidence shows that the tongue was split.)



—— Loquacity without regard to sex.
..... " boys.
▬▬ " girls.
.—.—. Cause of power to speak, viz., his tongue having been split.

Oliver's vocabulary, as reported, is as follows:—"Get up, get up." "Hello." "Have you got the world?" "What are you doing there?" "Milk! milk." "Here comes the cop, here comes the cop." "Good bye, poor man, good bye." "Ma, ma, ma." "Good morning," "Oliver," "How do you do?" "Lazy horse, get along." "Pretty well." "What do you want here?"

"Hello, boys." "Shut up." "What bad people live here." "It is a nice day, to-day, isn't it?" "Hello, more cake." "Tra la la." "Hurry up, Jim, hurry up." "Hello, Oliver, Hello." "Get out of this." "Get out here you rascals." "Good bye, girls, I must go home too." "Hello boys, hello, come back and see me." "Drunk again, Billy, drunk again." "When are you going home?" "I guess not." "Billy drunk again." "Stop, boys, stop." "Polly wants a cracker." "You rascals, what are you doing here, I did not tell you to come here." "Mamma." "Hello boys, can't catch me." "Can Oliver come in?" "What."

Among his habits, Oliver, has that of swearing. Here he seems to select his man. Twelve report on this trait, most of whom say that it is at a "well known minister of the town." One says that Oliver preaches. Nine say he laughs, several of whom record the noise he makes. Five report him as a singer, his part being bass. He cannot key his voice to the correct pitch, so produces discords when he sings with the children during the school exercises. Oliver scolds.

This crow has a wide range of feelings. He pities the weak. He becomes very angry. Sometimes he is very jolly. One boy says he is jealous. He has his friends as well as a few whom he hates. A large number report on this.

Oliver seems to have a sense of sympathy, which may best be shown by his expression when he saw the pall-bearers carrying a corpse into the church. As Oliver sat in a tree he was heard to exclaim: "Poor man, poor man." When the corpse was brought from the church and placed in the hearse, Oliver exclaimed:—"Good bye, poor man, good bye."

Oliver has a sense of right and wrong. He steals, and is sorry for it. He hides. Quite a number, 27, report that he has keen power of discrimination. They relate an incident of his hatred for a little girl eight years old. The brother wished to have revenge on Oliver for the abuse the bird imposes upon his sister. To deceive the bird, the brother disguises in the sister's clothing, but Oliver is shrewd enough to observe the difference, and does not disturb the brother.

Another instance shows what may be termed his supreme sagacity. In order to relieve herself of his company, which she considered a nuisance, a lady soaked some grain in whiskey which was afterwards fed him that he might be caught in this intoxicated condition. The grain made the bird drunk, but in this condition he was wise enough to keep concealed on the roof of a house, away from reach of those who might wish to do him damage. One of the girls thinks he exercises considerable power of selection even of his diet, saying that in this respect he is an epicurean. One girl saw him enter the schoolroom,

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take a piece of crayon, and write on the blackboard. Several saw him rap on the window of a kitchen for another egg after he had tried one and found it frozen.

He dislikes anything red, as articles of clothing, hair, etc.

Mr. Monroe calls attention to the fact that "33% of the boys and 48% of the girls mention that some of the town people regard him as a nuisance, for the following reasons:—'He awakes people early in the morning by pecking at windows and hallooing;' 'he destroys flower beds;' 'he flies off with children's caps;' 'he interrupts lessons at school;' 'he steals things from open windows;' and 'he annoys the delivery men of the grocer and butcher by pecking open bags of sugar, cases of eggs, and bundles of meat.' "

On this point the essays show that these are not the feelings of the children, for they are almost unanimous in offering a sympathetic excuse for each wrong deed. Mr. Monroe's study concurs with mine on this observation.

The greatest interest of a personal character is shown by the younger children. To them he is a genuine companion, having a comparatively strong personality. They think less of his being a nuisance, the girls giving signs of earlier recognition of this point than the boys. Perhaps the girls more frequently suggest the color of his feathers, his claws, and his bill, while the boys oftener notice his daily rhythms.

In partial explanation of the interest of the children in the bird may be offered the unconscious element, from association, growing out of the similarity of the psychic processes of the child and the bird. Prof. Shaler, in "Domesticated Animals," offers the same idea for domestication in general. The bird, in turn, has shown his adaptability by the abandonment of fear and rage which were in the wild life, essential to existence. This completely changed his desire for companionship as shown by his dislike, and perhaps fear, for a new crow placed in his company.

No laws can be formulated from this single instance, but a suggestion may here be offered that fear being overcome, and natural modes of life as opposed to imprisonment, so that freedom may be sustained, established, educability of wild life into helpful relationship to man may early be expected. The essays show how upon such friendly relations, aided much by long forming instincts, the highest evolution of all life may be materially assisted.

NOTE.— Bogaras, in American Anthropologist, October-Dec., 1902, pp. 644 and 675, points out the fact that generally among the primitives of northeastern Asia, and with American Indians the Raven talked, and interfering with his tongue prevented his power to speak.

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CHILDREN'S IDEAS OF FIRE, HEAT, FROST AND COLD.[1]

By G. Stanley Hall and C. E. Browne.

This paper embodies the results of returns to the following set of questions sent to teachers and normal school students principally in this state and New Jersey.

TOPICAL SYLLABUS.

Heat and Cold.

I. Do you like fire gazing and reverie? Did you ever imagine faces, tongues, animals, or forms in the fire? Does gazing at fire start far-away reveries, not connected with fire? Describe cases of special love of fire; special aversion to fire.

II. How, as a child, did you regard smoke? Ashes? Noises of the fire? Have you ever observed any instances of ceremonial fires among children?

III. Did you like to play with fire as a child? Give instances and cases of special propensity for playing with fire among children.

IV. What was your first experience, so far as you can recall, with heat and cold? Give instances which you have observed.

V. What was your idea of Jack Frost? Ask the children who Jack Frost is; what he does, etc. Ask them to draw him, making no suggestions.

VI. Ask the children to draw pictures of some or all of the following: a snowflake, a snow storm, snow, a piece of ice, ice, fire and flame, a burning building, a very hot day, a very cold day, the sun on a hot day, the sun on a cold day, a burning match, smoke, what the child sees in the fire.

VII. Let the children each choose one of the following subjects and write about it; summer, winter, heat, cold, the sun, Jack Frost, ice, fire.

VIII. What were your childish ideas and feelings about the sun? Ask the children about the sun—its size, distance, what it does, where it goes, how it got into the sky, who made it, etc.; also its relation to the moon, stars and clouds.

IX. Ask the children which is worse, a hot, or a cold day. Also which mode of death they would prefer, if obliged to choose between them, burning or freezing.

X. Let them draw and describe a thermometer.

XI. Ask the children why the air shakes on a hot day over a hot stove.

XII. Ask why the cold turns water to ice; and heat, to steam.

XIII. Ask what would happen if it were to keep on growing slowly colder and colder; hotter and hotter.

Phylogenetic Thermo-Psychoses. That thermo-psychoses are very central phylogenetically appears to need no special proof.

[1]This study was made with aid given by the Carnegie Institution which is hereby thankfully acknowledged.

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Fire, almost daily operative in some or all of its phases in man's conscious experience, appears to be coaetaneous with the history of the race. It plays an essential part in myth, religion, folklore, history, literature, science, manufacture, navigation, and the home. One of the most potent factors in human progress, it is also one of the greatest of destroyers. It is estimated that of insured property alone, over two hundred million dollars worth is annually destroyed by fire. What this means in terms of human suffering would be hard to estimate. With the present highly developed systems of insurance and means for fightiug and control of conflagrations, actual loss of life and attendant human suffering have been much reduced. Although relatively more essential and varied in its uses, fire to-day comes into consciousness far less than with primitive man. The modern stove, hot air, hot water and steam heaters have relegated fire largely to the unconscious.

Origin of the Use of Fire. Historic man has never been without fire. The distribution of fire myths shows its wide spread if not universal use long before the dawn of history. Although there are some slight traces of fire in the miocene age of the tertiary epoch,[1] it is not until the quarterary epoch that the first real evidence of man appears. There is abundant evidence not only of man, but also of his use of fire from the earliest part of this epoch. Contemporary with the Irish elk, the cave-bear, and the age of polished stone, are found pieces of pottery blackened by smoke, hearths, bones partly or completely carbonized, ashes and cinders.[2] With fire prehistoric man burned the bodies of his dead, charred the posts on which his lake-dwelling was to be built to preserve them from decay, and hollowed out the body of a tree for his canoe. He knew how to cook his food, warm and light his hut. As, with primitive man, hunger and thirst are the natural enemies of his existence, and his chief source of misery or happiness, fire, food and water became some of his earliest gods.[3] The fire especially comes to take a principal place in his life though water worship seems to have preceded that of fire.[4] Besides warming him and giving him light at night, fire made his food taste better and digest easier. The mysterious nature of the blazing fire, its apparent spontaneous creation, its decomposing power, and perpetual self motion, place it far above the other elements or natural forces as an object of his veneration and awe. Thus primitive man was a fire-using, fire-worshipping animal. This element, which was such a mighty force in his

[1] Joly: Man Before Metals, pp. 175-180.
[2] *Ibid.*, p. 196.
[3] Brinton: Myths of the New World, p. 144.
[4] Grimm: Teutonic Mythology, Vol. II, p. 602.

hands, was an object of dread to all other animals. Indeed, no other single character separated early man from the animal more than his use of fire.

How primitive man first got his knowledge of fire we can only guess, although mythology is very ample and explicit on this point. The Maoris, one of the aboriginal tribes of New Zealand, tell of one Maui, who had fire given him by his old, blind grandmother, Mahuika, who drew it from her finger nails. Wishing for more fire it was a second time drawn from her big-toe. These two fires proved so strong that everything melted before them. Even Maui and his grandmother would have burned up had not a deluge been sent from heaven which extinguished the fire save a few sparks which Mahuika shut up in the trees whence men are able to draw them now.[1] In Victoria, Australia, the natives tell of a beautiful maiden who went about killing snakes with a staff which one day snapped in two, and as it broke fire burst out of it. Here a "serpent killer was a fire bringer."[2] In the Persian Shahnamah fire was also discovered by a dragon fighter. The hero hurls a great rock at the dragon, which, missing its mark, strikes and splinters another rock. According to the record, "Light shone from the dark pebble, and the heart of the rock flashed out in glory, and fire was seen for the first time in the world." North American legends tell of a great buffalo galloping across the plains. His hoofs striking the stones make sparks flit in the night and the prairie is set on fire; or of a panther striking with his claws as he scampers up a stony hill.[3] Among the Greeks the most typical fire myth is that of Prometheus. He becomes the great benefactor of the human race. According to Æschylus mankind were long ages ago in utter and hopeless savagery. They had no settled places of abode, no notion of marriage or of the ties and duties which bind the members of the family together. They burrowed in the ground like the Digger Indians. Their food was scarcely better than that of the insect-eating Bushmen. They knew nothing of fire and did not perceive how far it could raise them above the beasts of the field. This was their original condition. Prometheus seeing their pitiable state was moved with compassion and stole fire from the house of Zeus, concealing it in a fennel stalk. He imparted the knowledge of it to men and taught them its uses.[4]

Primitive Methods of Obtaining Fire. The primitive method

[1] Reclus: Enc. Brit., Vol. IX, p. 229.
[2] *Ibid.*, p. 229.
[3] *Ibid.*, p. 229.
[4] Cox: Mythology of the Aryan Nations, p. 429 *et seq.*

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of obtaining fire seems to have been by the rubbing of two pieces of dry wood together.[1] The early Brahmans produced the sacred fire by the friction of a stick, the pramatha which the priest applied from right to left, and left to right in a fixed groove, made by the intersection of two pieces of wood. The "divine child," or fire, thus "generated," was the fire-god, Agni (Latin *ignis*). In the age of the lake-dwellings,[2] quartz and iron pyrites were used to produce a spark by striking one against the other. This method was employed by the savages of Tahiti, New Zealand, and the Sandwich Islands. The fire drill has been the most common instrument used for this purpose. In its simplest form, it consists of a stick, one end of which fits into a cavity hollowed in a piece of dry wood. The stick or drill is turned rapidly between the two hands and at the same time a downward pressure is exerted. In later use the turning of the drill was produced by pulling alternately either end of a string wound a few times around it. This instrument was in use in both North and South America, Australia, China, Sumatra, the Caroline Islands, Kamchatka and South Africa.[3] It is still used by the Yenadis in Southern India[4] and the Veddahs of Ceylon.[5] A later means of producing fire was by the reflection of the sun's rays from a mirror. This method was common in Pliny's time.[6] In China the use of the burning lens was common.[7] The European and American method of starting a fire with flint, steel and tinder box; or sulphur tipped splints of wood, the "spunks," were superseded in the first quarter of the 19th century by the invention of friction matches.[8] The concensus of opinion seems to be that there is no authentic account of a tribe without the knowledge of producing fire although a number of such stories are current.[9]

General Notions Concerning Fire. In myth generally fire is regarded as a living thing. To the early Roman it was a "devouring, insatiable beast"—a "*vorax flamma.*" It licks with its tongue and eats all around it. The Edda makes fire a brother of the wind and sea. Sometimes compared to a red cock flying from house to house. An old Norwegian custom was that so long as a child remained unbaptized the fire must

[1] Tylor: Early History of Mankind, p. 237.
[2] Joly: Man before Metals, p. 189.
[3] Tyler: Early History of Mankind, pp. 237-254.
[4] Shartt: Transact. Eth. Soc., Vol. III, p. 376.
[5] Bailey: Eth. Soc., 1863, p. 291, (cited by Tyler).
[6] Pliny: XXXVI, 67, XXXVII, 10.
[7] Davis: Vol. III, p. 51. (Cited by Tyler.)
[8] Paton: Enc. Brit., Vol. XV, p. 625.
[9] Tylor: Early History of Mankind, p. 236.

not be allowed to go out.[1] The Zend Avesta of Parsees contained minute and irksome prescriptions for keeping the hearth fire pure and bright. Nothing unclean was to be put into it and no indecent act committed before it. The Parsi must always say his prayers before a luminous object, hence the altars in the temples must always be bright with the holy fire, according to tradition, brought originally from heaven. Spitting in the fire, or sullying the sacred flame in any manner was punishable with death. The priests must always approach the fire half masked, lest their breath defile it, and never touch the sacred element with their hands but with holy instruments.[2]

A distinction was made by the ancients between friendly and malignant fire. Brimstone among the Greeks was friendly—it was sulphur θεῖον, "divine smoke." The malignant fire was represented by Norse Loki. Just as Loki was conceived as "breaking out," "getting loose," so the phrase was similarly used of fire. Our own very common phrase of "fire breaking out" probably goes back to some such origin. Fire is often spoken of as a powerful enemy that must be resisted with might and main. Tacitus tells how Ubii suppressed a fire that broke out of the ground spontaneously. Fire breaking out of the earth is also mentioned in the mythology of Iceland. A distinction was often made between freshly kindled fire and that which had been used. Only freshly kindled fire was thought fit for sacred uses. This was termed wild fire in contrast to the supposed tame or domestic fire in ordinary use. Many superstitions were prevalent concerning the supposed properties of wild fire. In many villages of Lower Saxony, especially in the mountains, it was common as a precaution against cattle plague to procure new fire and drive through it, first the pigs, next the cows, and last, the geese. Among the Celts and Teutons two fires were often kindled side by side and to pass unhurt between them was beneficial both for men and cattle.[3]

In India, Agni, the fire god of the old Vedic faith, is supporter of the universe. He is a tongue of fire through which the gods and men receive their portions of victims sacrificed. The hymns to Agni describe the common properties of fire which dies with a hiss when it touches water; grasps food in its jaws; Bright Faced Agni; sends forth moving and graceful smoke; never grows old; he scathes the forests with his tongue; he shears off the hair of the earth as with a razor; his back is

[1] Grimm: Teutonic Mythology, Vol. II, p. 601.
[2] Reclus: Enc. Brit., Vol. IX, p. 230; Internat. Cyc., Vol. XI, p. 345.
[3] Grimm: Teutonic Mythology, Vol. II, p. 601.

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black and he has many limbs; his hair is flames; he is engendered by two sticks, etc.[1] To Heracleitus the world was an ever living fire. The pure element of fire—which was one of the poles in the never ceasing flux in the universe—was to be found chiefly in the sun, which, like the other heavenly bodies, was a sort of bowl or pan, its concave side turned toward the world.[2] He also thought it secreted daily out of the earth, leaving it somewhat darker and colder, but was reabsorbed at night. It typified the relation of mind to body. So, too, life arises from and returns to earth. "All Greece confederated in making Delphi its central hearth whence new fire was fetched every year." On the prytaneum burned a perpetual fire, sacred to Hestia.[3] Among the Romans, the well known lame god of fire, Vulcan, laboring at his sooty forge at Mt. Ætna, is the Greek fire-god, Hephaistos.[4] Vesta, goddess of the Hearth, is the Greek Hestia. She represented the sacred and mysterious nature of fire and was the guardian angel of mankind. She was worshipped throughout Italy and also in Greece and Asia Minor.

In ancient times the family hearth was of far greater significance than at present. It was the family altar from which the father of the house was wont to offer up his daily prayers and sacrifices. Before it guests were entertained, agreements made and compacts entered into. Hence, Vesta is the goddess of fair dealing. She is represented as pure and undefiled. The sacred fire of Vesta was also a symbol of the fire of life which the ancients believed was kept burning within each human breast by the goddess. In the temple dedicated to her worship, virgins, the most beautiful and noblest of the Roman maidens, watched the sacred fire night and day, fanning the flame and adding new fuel as the old burned out.[5]

In the Hebrew scriptures fire is used both as a general symbol and also as representing Jehovah; as, Jehovah appearing to Moses in the burning bush,[6] descending in fire on Mt. Sinai,[7] etc. Fire was very commonly held to come down from heaven; as, fire descending from Sodom and Gomorrah,[8] a fire came out from before the Lord,[9] fire falling from heaven in answer to the Prophet's prayer,[10] there went up a smoke out of his nostrils and fire out of his mouth,[11] upon the wicked he shall rain fire and brimstone,[12] clouds and darkness are around about Jehovah and fire goes before him,[13] etc. Aside from its use

[1] Cox: Mythology of the Aryan Nations, p. 418 *et seq.*
[2] Burnet: Early Greek Philosophy, p. 153.
[3] Reclus: Enc. Brit., Vol. IX, p. 230.
[4] Guerber: Myths of Greece and Rome, pp. 144-148.
[5] Guerber: Myths of Greece and Rome, pp. 198-204.
[6] Exod, 3:2. [8] Gen. 19:24. [10] I King, 18:38. [12] Psa. 11:6.
[7] Exod. 19:18. [9] Num. 16:35. [11] II Sam. 22:9. [13] Psa. 97:2, 3.

sacrificially, its figurative use is perhaps most common; as, Jehovah is a consuming fire,[1] the third person of the Christian trinity is a tongue of fire,[2] the jealousy of the Lord burns like fire,[3] his anger also burns like fire,[4] wickedness burns like fire,[5] his fury comes forth like fire,[6] will blow upon you in the fire of my wrath,[7] his eyes are lamps of fire,[8] he is a wall of fire round about,[9] the tongue is a fire which sets on fire the whole course of nature and is itself set on fire of hell, etc.[10] Although there are many instances reported in the Bible of kindling and setting fires, there is no mention of the means employed in the starting of the fire. Tylor comments upon this peculiarity.[11]

Among the Aztecs the rekindling of the sacred fire took place at the end of each cycle, which was of fifty-two years duration. The great feast of fire began on the last day of the cycle. In the evening all fires were extinguished in the houses and temples; earthen vessels were broken as if in preparation for the end of the world. Anxiously the people watch the tops of the mountains from their roofs, where bonfires will be kindled from the new fire if the gods show themselves propitious. When new fire appears the greatest happiness and joy prevails for it is a sign that there will be fire and light and life for another fifty-two years.[12]

Among the North American Indians the institution of perpetual fire prevailed almost universally. The savage knew that the fire was necessary to his life, were it lost he clearly foresaw the ruin of his race. At fixed seasons he therefore produced it either by friction or the flint, or else was careful to keep it always burning.[13] An old Indian saying very often quoted to illustrate this point is that of an Iroquois chief in 1753. "It was a saying among our ancestors that when the fire on Onondaga goes out we shall no longer be a people."[14] A prophet of the Shawnee Indians says, "Know that the life in your bodies and the fire on your hearth are one and the same thing, both proceed from one source."[15] The principal feast of the Delawares was to their "grandfather the fire."[16]

To express the immortality of his gods the Algonkin said, "Their fire burns forever."[17] At the fourth day of its life the

[1] Deut. 4:24.
[2] Acts 2:3.
[3] Psa. 79:5.
[4] Psa. 89:46.
[5] Isa. 9:18.
[6] Jer. 4:4.
[7] Eze. 21:31.
[8] Dan. 10:6.
[9] Zech 2:5.
[10] Jas. 3:6.
[11] Tylor: Early History of Mankind, p. 254.
[12] Biart: The Aztecs, p. 167.
[13] Brinton: Myths of the New World, p. 168.
[14] Doc. History of New York Vol. II, p. 634.
[15] Narrative of John Tanner, p. 351.
[16] Loskiel: Ges. der Mis. der Evang. Brüder, p. 55. (Cited by Brinton. *Ibid.*, 168 *et. seq.*)
[17] Narrative of John Tanner, p. 161.

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infant received a baptism of fire which had been lighted at his birth and kept burning to nourish his life.[1] The burning of the dead among the Algonkin, Ottawas, the Nicaraguans and the Caribs was a means to the higher life, the idea being that the soul of the departed would rise to heaven in the flames and smoke.[2] Among the tribes of upper California it was held that such as were not burned at death were turned into animals.[3]

The general subject of fire has been treated quite at length by a score or more of competent scholars and in many phases impracticable to introduce here. This very inadequate and syncopated survey of the history of fire and its psychoses may, however, serve to show something of the phylogenetic substratum that has developed in the race experience.

Turning now to the questionnaire: the answers are of two types; reminiscent, and direct. Of the reminiscent returns, there are 132, 128 being females and 4, males. From their relatively larger representation, the results, as far as they go, can only hold as typical of females. The average age is 19.9 years. To the direct returns we shall turn later. The numbers and ages of the children varies with the different topics; they will therefore be given separately under each.

In presenting data of this nature, or in accepting results, it should be borne constantly in mind that the numbers are in many cases, as in the present instance, very meager. Generalities built upon such insufficient data can not be too severely criticised. The difficulties connected with gathering data by questionnaire and the necessity of carefully sifting all data so obtained, must obviously make the statistical value of this method, in many cases, doubtful. The point of view, of the paper is, that while the numbers on which the data are based are too few to be of more than a suggestive statistical value, yet the qualitative nature of the data has a value quite apart from statistical considerations. To state phenomena faithfully, simply, however few the numbers, has a real value if one does not fall into the unpardonable sin of hasty and unfounded generalization.

The following list of animistic terms or descriptive and metaphorical words and phrases in common usage relating to fire will indicate that it still stands for a large block of varying experiences. The list, by no means exhaustive, was compiled from shorter lists given in the returns, the terms and phrases being those most familiar to the writers.

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[1] Brinton: Nagualism, pp. 43-46.
[2] Oriedo: Hist. de Nicaragua, p. 49.
[3] Presdt's Message and Docs., 1851, pt. III, p. 506. (Cited by Brinton, Myths of the New World, 169 *et. seq.*)

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Terms and phrases applied to fire:

Angry, arms of, awful, alive, "ate its way through the wall."

Billow of, birth of, bursting, bright, boisterous, beautiful, bed of, born of the match, breath of fire, blazing, blue, brisk, burning, beating, bickering, buzzing, brutal.

Crackling, curling, column of, crying, crawling, consuming, clinging, climbing, cheery, cheerful, creeping, crafty, clink of, coursing, crouching, creeping, crashing, cruel, choking, cold, companion, companionable, company, comfortable, covering, cooling, cracking.

Dancing, devouring, dying, destroying, demons of, dreadful, devastator, deceitful, deathly, dazzling, darting, destructive, a demon.

Eating, expiring, "each coal a living breathing creature."

Flashing, flickering, flying, flaming, frantic, forked flame, "fire licks water," "fire eats coal," fiendish, forking, friendly, fierce, furious, fatal, fire dance, fascinates, feeding fire, frightful, fighting, frolicking, flaring, fantastic, fiery gulf, fiery tomb, fiery serpent.

Giddy, glowing, greedy, golden, gold, glaring, glorious, gasping, getting discouraged, gliding, green, gleeful, gentle, gleaming, growing.

Howling, hallooing, hungry, hissing, home of, hot, humming.

Jumping, joyous, jerks.

Kissing.

"Like a thief in the night," leaping, lapping, lake of, licking, laughing, live, low, leaping skyward, livens up, loud, lasting, lowly, livid, living, lively.

Mercy of, merciless, mocking, moaning, merry, merrily danced, mysterious, mad, monster, mighty.

Noise of.

Ocean of, origin of, overtaking.

Plunging, pursuing, pitting, playing, piping hot, passionate, powerful.

Red, roaring, running, retreating, racing, raging, raging sheet of, ravenous, river of, rising, rosy, rushing, "reaching out after," ruddy, relentless.

Sea of, stream of, streak of, sputtering, selfish, sneaking, swept, scouring, smouldering, shaft of, savage, surrounding, seething, searching, sweeping, screeching, scaring, snapping, smacking, snarling, scorning, surging, stealthy, spreading, "sparks dancing up the chimney," spitting, sheet of, steady, springing, shooting, splendor of, soothing, sucking, seat of, sissing, smoking, shining, singing.

Tongue of, tossing, terrible, teeth of, twisting, twirling, talking, thirsty.

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Unyielding, unconquerable, unruly, understands.
Venomous.
Wave of, wall of, wreath of, wrapt in flames, writhing, winding, whistling, whispering, wild, wicked, whirring, wavering, wriggling, warm.
Yelling, yellow.
Zealous.

Of these terms and phrases, 237 in all, 58%+ personify fire. 30%+ of the terms indicate disgust or dislike of fire; while 18%+ a liking for it. 47%+ of the terms indicate spectacular as against 12%+, auditory characteristics. 22%— expressing some form of bodily movement.

Historically considered thermo-psychoses belong to the phylogenetic series. The ontogenetic aspect appears on the side of the individual as contrasted with the race. The detailed analysis of the returns is, therefore, ontogenetic. In comparing ever so roughly the individual with the race, questions of recapitulation can hardly be avoided. To what extent, if at all, does the individual recapitulate the stages through which the race has passed? Why? and what its pedagogic significance?

In the treatment of details which follows, the "+" sign should be appended to nearly all of the averages and percentages. But as the purpose of the paper is qualitative rather than statistical the "+" sign has been omitted.

Group I.

1. CHILDREN'S FIRST EXPERIENCE WITH HEAT.

Of the reminiscent returns 28% are positive. In each case some particular experience is recalled as the earliest. It is without exception, painful; and appears to be vividly reproduced in all its settings, as: a particular hot day when everything seemed to melt and wither; going to see a parade on an uncomfortably hot day; a particular day when the corn leaves rolled up and the grass looked burned and dry; crossing a bridge on the way home from school, the hot boards burning the bare feet; the day father was sun-struck; a hot day in July at a picnic; walking with bare feet on a hot sidewalk; the dust lying white and thick on the hot road; picking up a piece of hot lead; a hot day followed by a terrific thunder-storm; putting the thumb on a hot tea-kettle; on a hot flat-iron; the hand on a hot stone; seeing a building in flames; and so on. Among 50 boys, average age 5.2 years, and 60 girls, average age 5.09 years: the first experiences with heat are all painful and abrupt, except in two cases where the spectacular effects of the fire were the exciting factor. With 7 boys, however, average age 2.2 years, and 12 girls, average age 3 years, the experiences

are reported as less abrupt, but still unpleasant. Thus one says the "hot" made her sick. God was "bad" to make it so; she "did not like God." Another wanted to lie in water all day; one, that it was getting hot as a stove; and so on.

(a) *Ways in which the danger of burns and conflagrations are first learned.*

Total number of returns, 182. Boys, 79; girls, 103; average age, boys, 6.5 years; average age, girls, 5.6 years.

Burned hand or head on something hot, 39%. Do not know, 8%. Being told, 7%. Clothes caught fire, 5%. Hot liquid; hay, grass, meadows burned, each, 3%. Furniture, curtains burned, 2%.

Person being burned to death; match scratched on the hand; pictures, fire-bells, the red sky; another's being burned; lamp over-turned; each, 1%. Bumblebee's nest; fence burned; accident with fire-crackers; each, $\frac{5}{10}$% of 1%. In 42%, the effects are purely heat effects; while in 58%, the effects are due to spectacular and other factors connected with conflagrations and heat.

From the analysis of these data on early experiences with heat, it appears that a large class of individuals have in their mental background some pain-toned thermo-psychosis arising from early accidental contact with high temperature. The tendency or ease of recalling such experiences with all their pain effect undoubtedly produces the various degrees of dislike of fire. Where the early experience is extreme, or where the susceptibility of the individual to shock from such experiences is heightened by heredity or otherwise; or from these two combined, the subject may become a *fire hater* or a *fire dreader*. How large is the class of such individuals with some such early *soul scar*, or *soul scare* from which the organism does not fully recover, is an important question for the psychology of this subject.

2. *Likes and Dislikes of Fire.* From all the returns on this subject, reminiscent and those of children together, 324 cases of like or dislike of fire were noted. 98 of these were males, as against 226 females. Of the males, 85% express a liking for fire; while 15% dislike it. Of the females, 84% like fire, as against 16% which do not. Restricting these cases to children under 10 years of age, the percentages are somewhat different.

Total number of cases 78, 39 boys and 39 girls. 72% of the boys like; 28% dislike fire. Of the girls 56% like; 44% dislike fire.

(a) *Special Love and Special Aversion to Fire.* Among all the reports of likes and dislike of fire, 13% show a marked or special love of fire or an intense aversion to it. 19% of the

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males and 10% of the females are in this class. Of the males 95% have a special liking for fire, as against 5% that have a special aversion to it. Of the females 29% special liking; 71% special aversion.

The following cases, which are quite typical, illustrate this class.

"Knowing I shall be burned I have a strong desire to put my hand on a hot stove."

One was much afraid of lighted lamps and could not bear to see them. Told her mother that when she "got big and married" she was going to bed at six so she would not have to have any lamps in the house.

A little girl of five will tremble when a match is struck and cries at the sight of a bonfire.

One has a constant fear of being burned to death or of seeing some one else burned. Would not think of going to bed so long as there was a lighted lamp in the house. Dreams about fire.

These instances of like and dislike of fire are further illustrations of the now well-established fact of pyrotropism. Both its negative and positive phase are indicated. The returns show that, while the distinction is not so well marked with mature individuals as in children, males tend to be positively pyrotropic, females, negatively pyrotropic; or that males tend to pyromania, females, to pyrophobia.

Pyromania. Directly in line with and growing out positive pyrotropism is pyromania with its well-known history of incendiarism. The line of demarcation between the criminal and purely pathological incendiary is vague. The older codes of law did not distinguish the pathological element and arson was often a capital offense. In Scotland "fire raising" was punishable with death if demanded by the public prosecutor.[1] In modern usage the pathological side is more commonly emphasized. Pyromania, Ger. Feuerlust, Brandstiftungsmonomanie, Fr. Monomanie incendiaíre, is defined as a morbid impulse to burn. Meckel was the first to use the term impulsive incendiarism (Branstiftungstrieb) and to describe it as a new disorder. Platner describes "feuerlust" as a sort of delight taken in seeing fire burn with apparent lack of motive. He found it very common in imbeciles and also frequently accompanying sexual disturbances in young females. He accounted for pyromania by supposing a condition, "amentia occula" in which feeling and morale were disordered while the intellect remained intact. Henke regarded the frequent tendency to incendiarism among adolescents to arise from organic disturbances at, or just before puberty.

With females the curve for pyromania rises abruptly at puberty and is often accompanied by derangements in the repro-

[1] International Cyc., Vol. I, p. 751.

ductive system. A typical case is that of adolescent girl suffering from sexual debility. During menstruation she was often disturbed at night by voices which seemed to whisper "Set on fire. Set on fire."

The largest class of incendiaries are congenital imbeciles. The next largest class are melancholiacs. Here setting fires seems to be resorted to for the purpose of relieving the general feeling of uneasiness and anxiety with which the patient often suffers. An apparent mental relief often accompanies the commision of crime with such persons.

Flemming and others are inclined to discard the instinctive interpretation of incendiarism, holding that, instead of an irresistible impulse with absence of motive, there are nearly always normal motives. Among the most common of such motives are—revenge, fear, anger, hatred and nostalgia.

Pyrophobia is the inhibitory side of pyrotropism. If we take the evidence of the returns it is much less common than pyromania. (See studies of fears).[1] "Mild pyrophobia appears in caution about sparks and matches; dread of every bright fire; of the noise of lighting a match or the sight of it; of the word fire; the sound of crackling or sight of smoke from a chimney is feared. It may be associated with the wind; with dread of jumping and falling; with hell and judgment. Fire may rain from above or come up out of the fiery center of the earth, etc."

Heliotropism. Pyro- or heliotropism also appears to be fundamental in the animal world. The most noted instances of it have been observed among the lower forms; plants, insects, annelids, etc.[2]

The tropisms are classifications, not explanations of the facts. Such classifications leave the facts as much in mystery as ever, but it is clearly defined and localized mystery. Classification in this sense is the first step in explanation.

3. *Fire-playing Propensity.* The propensity for playing with fire seems from the reports, to be well marked in children as early as the sixth or seventh year. But it appears to be almost twice as common in the case of boys as among girls. From 148 returns of fire-playing, 103 are boys; 45 girls. The average age of the boys is 6.5 years; of the girls 6.7 years. From 71 cases noted in the reminiscent returns, as directly observed by the writers, there were 36 boys and 35 girls. Of the boys 53%

[1] *Am. Jour. Psych.*, Vol. VIII., p. 181.

[2] Loeb, Jaques: Der Heliotropismus der Thier, und seine Uebereinstimmung mit dem Heliotropismus der Pflanzen. Würzburg, 1890, pp. 118. Parker and Aikin: Influence of Light on Earthworms, etc., Am. Jour. Physiol., Vol. V., 1891, pp. 151-157. Smith A. C.: *Ibid.*, Vol. VI., March, 1902, pp. 459-486.

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played with fire; 47% did not. Of the girls, 34% played; 66% did not.

The delight in fire-playing shows itself most commonly in building bonfires, 24% of all the instances. The next most common reported is that of "swinging around" or rotating about the vertical axis with burning sticks or papers in the hands, 16%. Then in order follow:—Putting of sticks, straws, etc., into the fire to see them burn, 12%. Building fires in houses and other buildings, 8%. Setting buildings on fires, 7%. Setting curtains, bedding, carpets on fire, 3%. Building fires for baking or roasting; also in pans and cans; each, 2%. Setting fire to portico, hay stack, in the fields, taking matches to bed, each 1%. Heating pokers in the fire, $\frac{5}{10}$ of 1%. In 14% of these cases among the boys, and 4% among the girls, the building of fires was accompanied by other activities; as, running, jumping, whirling the fire around, and yelling. Interesting analogies are found in many fantastic dances and orgies of the North American Indians about their camp fires. The medieval Easter fires of Northern, and the mid summer fires of Southern Germany are also analogous. Grimm says of Easter-fires "men and maids, and all who come, dance exulting and singing, hats are waved, handkerchiefs thrown into the fire; by turns they sang Easter hymns, grasping each other's hands and at the Hallelujahs clashed their rods together."[1] Mid-summer fires were similar in the main. The fire is first lighted and blessed by the priest. There is singing and prayer so long as it burns. "When the flame goes out, the children jump over the glimmering coals; formerly grown up people did the same."[2]

In Greece it was common for women to build bonfires on Mid-Summer Eve over which they jumped crying, "I leave my sins."[3] In Ireland when St. John's Eve fire burned low the young men stripped to the waist and leaped over and through the flames. He who braved the hottest flame was held to be the greatest victor over the powers of evil.[4]

That the fire-playing propensity in a considerable percentage of cases becomes intense, seems to be indicated by the terms of endearment applied to it by those reporting. In 66% of the cases tabulated such phrases occur. The most common are: great fondness, especially, extremely, very fond of, 30%. The next most common are: never satisfied unless, continually, always, every opportunity, 19%. Then follow—fond of, 12%;

[1] Grimm: Teutonic Mythology, Vol. II, p. 615.
[2] *Ibid.*, p. 617.
[3] *Ibid.*, p. 623.
[4] Crooks: Pop. Religion and Folk-lore of northern India, Vol. I, p. 20.

loves, 11%. Special liking for; likes very much; special, great love, 7%. Delights, 6%. Great propensity; great desire for; likes; each, 3% Perfect passion; craze; wild; great pleasure; very anxious; each, 1%. 80% of these terms are applied to girls; 61% to boys. Putting this with the fact that a little more than twice as many boys as girls were reported as playing with fire, it would seem to indicate that while girls play with fire about half as frequently as boys, yet when they do play, the passion for it, numerically, is stronger than in boys. The history of incendiarism shows that setting of fires sometimes occurs among adolescent girls as a sort of epidemic. A notable instance of this occurred in Normandy in 1830. Barns, granges and vineyards, covering large areas, were destroyed by fire.[1] The perpetrators were found to be exclusively girls. Confessions showed that their only purpose was to see the light.

This group of rubrics which we have been considering, while following pretty well defined lines, is less specialized than that now to be treated.

GROUP II.

1. FACES AND FORMS SEEN IN FIRE.

Reminiscent returns, 132, 22% of which are negative, leaving 102, or 78% as positive. Beside these are returns of 12 boys average age 6.2 years, and 5 girls, average age 8.5 years. In these cases individual differences are so numerous that no adequate presentation can be given without quoting from the returns.

M., 8 yrs., loves to draw his chair close up to the fire and sit gazing into it. He says he sees "big elephants, alligators, cats and dogs."

F., sees the sky as it looks after a rain.

M., 6, sees one of Buffalo Bill's Indians; while his brother two years younger, sees a duck with its head toward the chimney and its back toward him.

M., 9, will sit gazing into the fire until his face is scarlet with the heat, so absorbed as not to hear when spoken to.

F., 10, saw a "little angel with lots of flowers in her hands."

M., 5, "little men with slippers on dancing."

"Fire is a companion and understands what I am thinking about."

"If I had during the day been naughty, I never would go near the fire places, for I was sure if I did the devil and all the drunken men in town would be after me."

Another sees flowers such as lilies, roses, and pansies.

"I saw some of the characters of which I had been reading. Very often it seemed as if the faces were those whose characters I very much disliked, and that they were mocking me."

"Houses handsomely furnished."

One used to see "faces and birds and dogs and horses. I used to

[1] *Loc. cit.*

see cats and all the animals I was in the habit of playing with, but never any other kinds. A dear little playmate died and I used to see her face in the flames."

Another, "castles, faces and animals."

Another often sees the "summer time with the hot sun pouring down. Sometimes the shining streets and golden gates of heaven. Often faces, generally of old people, and of animals, generally dogs. Sometimes a deep gorge with a dashing, foaming river running through it."

Still another, "various animals and bird forms, grotesque faces, representing either giants or goblins. The irregular glowing of the coals seemed like fairy torches."

One, the letters of the alphabet. Once she made out the letters W—C—I.

"As a child I was very fond of fire gazing and often threw bits of paper and wood into the fire to watch them burn. I imagined that they were soldiers on a battlefield and that those that went out were those who were wounded and died. I imagined that the flames were some sort of indistinct animals chasing each other. As I looked at the stove from the outside when the slides were open, I imagined it to be a city with the houses on the streets illuminated."

One thought she could see the forms of Indians around the fire.

"When the coals were bright and hot I then imagined I saw all sorts of wild animals shaking their heads and tails. Sometimes I saw numerous little figures hand in hand dancing."

"The sparks were birds as they flew up the chimney." Sometimes thought there were "people in the fire."

"All sorts of animals were walking around. Some very fierce looking. There were faces also constantly changing." Sometimes fancied she could see "brownies dancing back and forth."

Another, "the forms of animals, the appearance of houses, especially castles and cathedrals, with their domes and spires. Sometimes faces of people, usually hideous," which frightened her.

"Jack climbing the beanstalk."

"I was very fond of gazing and wandering about water, especially large bodies, as lakes, rivers, the ocean, etc. I always was very sad and it made me think of dead people. Again, I pictured huge fishes, eels and snakes in the water with many, many white bones at the bottom, on the sand."

After hearing the Bible story of Christ casting out devils, she "thought of the little devils as having entered the fire and so making up the flames."

One thinks of fire as "hell" and sees "its inhabitants continually writhing in the flames, fighting and springing away from the fire in seeming agony and making horrible faces at each other."

Another, "old men with long beards tied fast to each other."

One says, "when the fire burned slowly and quietly, I fancied people working very busily, building up when the flames would rise higher than usually, then tearing down—all the time changing. When the fire burned rapidly, it seemed like a battle which raged fiercely, and finally when it ended, everything was left cold and still."

To one, the flames appeared to "lick the isinglass," as though they hated her and would like to get out to harm her. Sometimes they seemed to take the forms of animals on the isinglass, usually asymmetrical, "horrible looking beasts."

Another says, "I saw heads of people, snakes coiled up, birds, soldiers, dogs in different positions; a flock of sheep and lambs skipping about. Also flowers; as, roses, lilies, and sunflowers. Fruit; as,

apples, peaches, and bananas. I also saw a ship sailing and several houses near each other."

"When gazing into the fire sad scenes connected with my friends and myself will come before me."

"An imaginary ocean having large rocks and crags, casting their shadows upon the water."

"Streets with palaces on each side and people walking through them."

"Home scenes which were sometimes cheerful, but often sad."

"Rooms all furnished which seemed to be cottage rooms in the evening lighted by a blazing open fire which I could not see."

One says she could look into the fire and imagine that the "wood was a log-house and that the Indians were burning it. The smoke would seem to take the forms of children running away and trying to hide." The red part of the flame looked "like blood."

Another, "I could usually see the face of my mother in the flames, and then sometimes the heads of dogs and cats; occasionally such objects as pitchers, chairs," etc.

"I saw little birds flying, snakes coiled up, and donkeys racing. I also saw roses, lilies and pansies; clusters of grapes and cherries. I would frequently imagine on a windy night I saw a ship tossing in great, large blue waves."

"Wolves were running about with their long red tongues hanging out of their mouths."

"Cats, dogs, wild cats, at times, peered at me with their great eyes, until I was frightened, thinking they might jump out at me."

"I fancied that I saw fairies in the fire who danced and flew. They waved their hands, shook their heads, rustled their skirts, etc. Sometimes they threw little balls into the air which burst into little stars. Sometimes I saw a great many taking hold of hands and dancing round and round and stars shooting off of their crowns and wands. Sometimes they seemed to be climbing or flying upwards. Their faces were always bright and childish. They all had golden hair.

Sometimes I fancied I saw burning buildings in the fire.

Sometimes I seemed to see ugly men with whips which they cracked often and every time they did so a million little stars flew off the lashes of the whips.

I seemed sometimes to see lions that lashed their tails about and every time a quantity of stars flew up. Horses trampled about on the golden ground and stars flew up."

One used to think she saw fairies in the flames with their long flowing robes and white wings.

To another the blue flame of the coal was a spirit from some other world.

One, a raft with three men on it floating into an immense cave; and so on.

From the returns faces appear to be seen most commonly, occurring in 20% of the instances. Men are reported as seen in 9% of the cases. Then follow—tongues; houses; each 7%. Fairies, 6%. Trees; imaginary forms; birds; each 3%. Horses; bears; dogs; each 2%. Tigers; mountains; landscapes; woods; flames; ships; clouds; lions; snakes; each 1%. Also numerous other animate objects as,—wild men, people, children, sheep, soldiers, cats, squirrel, rats, spiders, goat, cows, pigs, chickens, donkey, etc. Among inanimate objects—fruits, rocks, sky, barn, water, furniture, wagon, doll, hat, circle, let-

ters, ball, top, cap, farm, moon, stars, battle, camp, hell, table, chairs, volcanoes, box, colors, train, etc.

Total number of objects reported, 253. 65% are animate; 35% inanimate.

In the seeing of faces and forms, and especially in fire dreaming and reverie well marked symptoms of hypnosis or autosuggestion are prevalent; as, the "spell," forgetting who and where they are, unmindful of the presence of others, self-absorption, etc. The play of form and color half hypnotizes the mind; just to sit and watch the fire starts dreamy reveries."[1] According to Guyau the child is hypnotizable in a high degree. Very young children are characterized by aïdeism, absence of ideas; and monoïdeism, domination of a single idea. All children, says Dr. Chamberlain, are remarkably open to suggestion and autosuggestion.[2] The very large and important role that hypnosis plays among primitive peoples is well brought out by Stoll.[3] Primitive man comes into very intimate rapport with fire which impresses him even more than it does the child. The blazing camp fire must have been very fruitful in conjuring up grotesque forms and images which grew in vividness and proportion by comparisons and additions in which the family as a whole took part. Extending later to the tribe and ultimately woven into story and passing from tribe to tribe new additions and subtractions produced the finished myth which had its initial impulse at the fireside. Fire gods, especially when objectified; as, Agni, Loki, etc., may have arisen almost spontaneously from gazing into the fire, by a process of suggestion. This hypothesis is, of course, only the suggestion of similar reactions to fire among children and may, *or may not* have been true of primitive man.

In recent times one of the most typical of classic monsters, the Chimaera, has been proven to have originated in very close connection with fire. The valley in Lycia, according to Strabo, where most of the devastations of the monster occurred, was overlooked by a volcanic mountain called Chimaera. Pliny says of this mountain, "Mount Chimaera burns in Phasilis with a certain immortal flame shining by day and by night." A number of travellers within the past century have verified this account by finding flames of natural gas still issuing from crevices of a mountain in this region.[4] Smith and other modern commentators agree that "the origin of this fire breathing monster must be sought probably in volcano of the name of Chim-

[1] *Loc. cit.*
[2] Chamberlain: The Child, p. 305.
[3] Suggestion und Hypnotismus in der Völkerpsychologie, pp. 523.
[4] Emerson: Geological Myths. Science, Vol. IV, pp. 329-332.

aera in Phaselis, in Lycia."[1] Servius explains the myth as follows: "The flames issue from the summit of the mountain, and there are lions in the region under the peak; the middle parts of the hill abound with goats, and the lower with serpents."

The traditional enchantment of the fireside story is also suggestive and may owe its charm largely to the fact of pictorial illustrations in the fire accompanying the words of the tale. Among the many typical instances of this is a picture of early Roman life where the whole family is portrayed as gathering about the fire and spending the long winter evenings in story telling.[2]

Another typical family scene is that of early life in Brittany. "In the lonely farm house after the evening meal, prayers are said and the life in Breton of the saint of the day read, all the family assemble with servants and laborers around the old-fashioned hearth where the fire of oaken logs, spirts and blazes defying wind and rain or snow without." The talk of oxen and horses and work gives way to tales of giants, goblins or witches and often of ghosts.[3] The magic ointment of fairy tales which when applied to the eyes opened them to a new world of fairies, pixies, brownies, imps, etc., is[4] very analogous to seeing faces and forms in the fire and may have been a sort of symbol for it. After clearing the eyes with this salve "a hovel or a cavern becomes a palace, whose inhabitants, however ugly they may be, are attired like princesses and courtiers and are served with vessels of silver and gold." One unhappy woman after an application of the ointment beheld "herself surrounded by fearful flames; the ladies and gentlemen looked like devils, and the children appeared like the most hideous imps of hell."[5]

That fire pictures are easily and vividly recalled after a long lapse of time was shown by the reminiscent returns. This point is still further brought by the drawings of children. Some of the most typical of these which ought to be reproduced here in fac-simile are of salamanders, shooting the chutes, children in bed, in a steaming bath, animals in a snowstorm, people blown about in a wind, mountains, the soul rising from the body, a deer's head, map of Massachusetts, children

[1] Smith: Dict. of Classic Antiq., Vol. I, p. 694.
[2] "Gesta Romanorum," Introd. p. xxv. (Cited by Hartland, Science of Fairy Tales, p. 9.)
[3] Luzel, "Veillées," (cited by Hartland, Science of Fairy Tales, p. 8.)
[4] Hartland: The Science of Fairy Tales, p. 59 *et. seq.*
[5] Sébillat, "Contes," Vol. II, p. 34; "Reme des Trad. Pop.," Vol. III. (Cited by Hartland, the Science of Fairy Tales, p. 63.)

drowned and floating in the bottom of the sea, an army, a book and lamp, horse, birds, monstrous animals, etc. These drawings were often so unique and detailed as to suggest vivid illusions.

2. FIRE-DREAMING AND REVERIE.

Almost inseparably connected with the seeing of faces and forms, is the phenomenon of fire-dreaming and reverie. In many cases it is spoken of as "building air-castles." The difference between fire-dreaming and the seeing of objects seems to be one of degree. 79% of those seeing faces or forms in the fire also had dreams and reveries in connection with fire-gazing.

Thus one says that when she saw a ship in the fire it made her think of the people, country, and things of distant lands. She would at such times wonder about the "ocean's greatness, the wrecking of vessels and drowning of people; of whales in the ocean," which to her were "so dreadful, because they were sometimes the cause of shipwrecks."

Another says—"When I saw the ship (in fire) sailing in the deep blue waves, I thought of the great oceans, the distant countries, and the people in those countries, I could picture Europe and imagined I saw crowds of people that I knew travelling among the Europeans. I imagined the large coals to be distant cities."

"When I was a child, I used to like to sit by the fire, and dream. Just at dusk, before the lamp was lighted, and when everything was still, I used to slip away, and taking a seat near the fire, I would so often think how cozy and warm it was, and picture the people who were perhaps suffering that cold night. I would think of the dreary, cheerless homes, and so many people without a fire while I was enjoying the warm blaze with not a care or trouble. What great plans I made as to what I should do when I was older! I would relieve the suffering, and no one would be without the cheerful warmth of a fire."

One loved "to sit in the dark watching the logs of an open fire burn." If she has company it makes her "talkative and confidential;" if alone, she dreams of "all sorts of pleasant experiences and imagines happy scenes."

"When about eight years old, my chum and I would lie on the floor before the open grate and gaze at the fire the whole evening. We have never built such air castles as we did before that grate. When alone I would look at it by the hour, but when one of the logs fell my heart would almost stand still. The spell was broken and I was so disturbed that I would leave the fire immediately."

"I would think of what I would do when I should become old enough to care for myself. Sometimes I would think of what I would do if I were very rich; how I would go to college and after that spend several years travelling both in my country and in Europe."

Used to think of what she had done during the day and would do when older. She often thought of herself as "in a foreign country travelling to see the places" she had heard travellers tell of.

Another says—"One time my sister was playing the piano very softly. I was in front of the fire and I seemed to see myself come out on the stage and astonish the audience by my wonderful playing. The audience encored me and I felt so happy that my face flushed. I was very much startled when my sister spoke to me and my air castle floated away."

Another says—"A feeling of pity would come over me for those little girls whom my imagination pictured as standing out in the cold snow with an old shawl over their heads and with long thin faces and deep set eyes. They were looking in at some window where all was comfort and coziness."

"Sometimes I see myself in a far city among strange people. Again I am in the country playing games as I used to do long ago;" and so on.

The character of fire dreaming seems to indicate it is "good for the soul." From the instances given the dreams are *all happy;* there are dreams of *ambition;* of *travel;* foreign countries; great things like the *ocean.* The dreams appear to be mostly of the *future;* frequently of the *past;* but never of the present. There are dreams of helping the *poor,* the *cold,* and the *destitute.* From these data it would seem that a recent German writer is right in insisting that schoolhouses should be built with open fire places as an incentive to fire dreaming. On the pedagogic side fire gazing is shown by the great personal variation in forms seen to be one of the best educators of the imagination.

3. NOISES OF THE FIRE.

From the returns children appear most generally to regard the noises of the fire as made by animals or insects. Often the wood or coal is alive and cries, therefore, when the fire burns it. Again, they often associate the noises with fire crackers, torpedoes, guns, etc.

The degree or extent of being impressed by noises of the fire, as compared with the seeing of faces in it, appears to be a little more than half; as 49% of the total number of reminiscent returns and 55% of those seeing faces and forms are also positive for fire-noises. The remaining 51% of the reminiscent returns are unimpressed. The rest of the data consists of 8 returns, 4 from boys, average age 4 years, and 4 girls, average age 9 years. Individual variation here, too, is marked and further illustrates the point of view of this paper—that individual treatment of a small number of cases may be valuable even if it does not justify sweeping generalities.

A boy ten years old used to think the noises were made by animals that were fastened in the wood and that they were making the noises because they were being burned.

To a girl, eighteen, it used to be a man jumping after all the pretty fairies to scare them away.

A girl of twelve always thought it was the cry of some insect. She felt sorry because she thought it would never cry unless it was being hurt.

"I always dreaded the noises made by fire and thought that the roaring and crackling was the most dangerous part of the fire. When a new fire was made I would always sit near by and watch it, and when the crackling of the burning wood and coal had ceased, then I considered all danger passed and my mind would be at rest."

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To a boy of four the fire is singing.
Another says it is a gun going off.
The "wood is having some fun—is laughing."
"A bing-bang going off."
"Like the rattle of the leaves when they fall in the autumn and are tossed about by the wind; like the roaring of the wind."
"The noises of the fire seemed to me to be a battle between those people whose faces I could see in it."
"I always thought the fairies were singing and the old men shouting when the fire cracked."
The noises of the fire made one think of "lots of witches, all clad in gray, with gray bonnets on, scolding each other and fighting over their bread and milk."
To one it was the "creaking of the limbs of trees in a forest. When there was a loud crack a tree had fallen."
One supposed that when the stove became very hot it cracked and caused the noise.
"Coal and wood crying and laughing as it was being burned."
One says, "I used to think of it as a great forest. The noises were the great trees cracking in the wind. I also thought there were wild animals; as bears and wolves howling."
"To me the hissing of the fire was that of snakes."
To another "the fire was angry."
The noises were "made by little crickets in the logs."
"Something alive in the stove that wanted to get out."
One thought it was fairies talking and screaming to one another and chasing horses through the flames.
One says—"I used to think the hissing which came from the fire was caused by snakes which had crept into the wood for the winter. They were angry at the great heat, hence the hissing noise. When the wood fell as it burned I thought it was the combat between the angry fire and the snake and that the cracking noise was the breaking of the backbone of the snake."
The noises are draughts of air through holes in the wood.
To one the fire was unhappy and complaining about something.
To another it was "happy people laughing."
"The wood and coal fighting with the heat and blaze."
The noise of the soldiers' guns which had been seen in the fire.
One would never go near the fire when it snapped and cracked for fear something would jump out at her—and so on.

Many expressions of sympathy or pity occur in connection with fire noises. 56% show this characteristic, while 40% interpret the noises as cheerful or happy. Individual differences are brought out in the following :—

Total interpretations, 58% ; Noises personified, 75%.
Fire is angry; alive; each, 10% ; Worms or insects crying, 8%.
Worms squealing; wood or coal crying and laughing; each 5%
Animal making noise; laughter of fairies; man jumping; wood and coal fighting against heat; wood and coal complaining; spirits; each 3%

Also others: as, fire talking; snakes; something trying to jump out; fire is happy; bad beast; Jack Frost; last groan of coal and wood; etc.

Of the noises not personified, the most common interpretation

is that of fire crackers, occurring in 10% of all the cases. There are also a number of others; as, gunpowder, wind, battle noise, noise of drums, guns being discharged, etc.

An analogous instance among many others of primitive man being impressed by the noises of the fire occurs in the Rig Veda. There the crackling of the burning twigs is held to be the voice of the gods. The same notion also prevails to this day in Borneo.[1]

GROUP III.

I. CHILDREN'S IDEAS OF SMOKE.

Reminiscent returns 65, 49% of which are positive—all having some peculiar notion about smoke. Also returns from 6 boys, average age 4.8 years; and 8 girls, average age 7.3 years. Here, too, individual differences are numerous. Thus—

A boy of four says "there are two kinds of smoke; one is cigar, the other cloud smoke." Another boy of five regards smoke with great curiosity if at a distance, but is afraid of it when near.

It is clouds coming down from the sky.

"Just like steam only dirty."

One says—"I imagined smoke to be steam which arose from the various dishes which my 'fire people' were preparing for their meals."

Another thought God took the smoke to heaven and made it into clouds, but she could not understand where God got his water as there was none in the smoke.

One thought the smoke similar to fire only it did not blaze as the fire did.

Another supposed that the black smoke from engines and mills formed the black clouds; and the light smoke from the chimneys, the white fleecy clouds.

One thought of it as the robes of fairies, waving and intertwining as they mingled in their dances.

"I always had a great horror of smoke because it seemed as if I should be smothered to death if I did not get free from the smell of it."

To one it was fairies flying away when tired of dancing.

"If I was going anywhere or anything was going to happen on a certain day and I desired very much to have the day pleasant I would go down and look at the smoke from the smoke stack of the engine; if three rings of smoke disappeared into the clouds without breaking it would be a pleasant day. If they broke it would surely rain."

"I always thought the smoke made the clouds and if you could take a hold of it, it would feel like soapsuds."

One used to imagine that the engine was an immense horse. The smoke was its breath.

"The fairies coming of the fire and going to their homes in the sky."

"I always thought of smoke as the breath of the fire."

One used to think it formed Santa Claus with his big basket on his back.

Another, the wood did not like to be burned and that the smoke was a prayer to save it.

One believed that the smoke was the dust kicked up by the animals

[1] Brinton: Religion of Primitive People, p. 142.

(seen in fire) when they had been attacked by an enemy and were running away.

"I was always afraid of smoke because I thought it grew and would smother me."

One thought she would like "to go up there where the smoke went."

Another had a fear of being drawn up into the clouds by it.

"I thought every time smoke went out of the engines a new cloud was formed."

In 39% of the cases cited, smoke is regarded as clouds.[1] Then follow: — steam in 5% of the cases; fairies in 3%; dust, 2%; wind blows it away and it turns to nothing, 2%; the same thing as fire 2%. The single expressions are, breath of the engine; robes of fairies; a bird; follows in the same path the birds take; forms Santa Claus; ghosts; breath of the fire; carriage going to a funeral; prayer of the wood; stuff that comes down from the clouds; like soapsuds to feel of; scorched air; thin air; what makes the engine go; and is alive. In 10% of the cases it is supposed to determine good or bad weather.

Fear or horror of smoke is expressed in 4% of the cases; choked or smothered 3%; hates the smell of it, 1%; saddened and chilled, 1%; while only 5% express a distinct liking for it.

The very common notion among children of considering smoke and the clouds as the same thing has a number striking analogies among Indians. Fawks, in 1895, found among the Indians of Arizona a peculiar habit of smoking as a sort of ceremony. A large pipe was filled with spruce twigs and other ingredients. When lighted a dense cloud of smoke arose. This "smoke cloud" the Indians believed ascended to the sky and caused rain.[2] Brinton also makes reference to ceremonial smoking in which the first puff is always to the sky.[3]

2. CHILDREN'S IDEAS OF ASHES.

Of the reminiscent returns 24% are positive or regard ashes in some special way. Also 6 boys, average age 3.8 years, and 3 girls, average age 6 years. From the returns it would seem as if children most commonly associated ashes with death and sadness.

In 34% of the cases cited this idea is expressed.

Thus one says "I regarded ashes with sadness because they seemed so lifeless and so incapable of anything; so light that the faintest breath could move them from their place with no power of returning."

Ashes gave me the idea that the fire was dying.

"I regarded ashes as the coals that had died. They were once alive and glowing and now they were cold and dead."

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[1] Hall and Wallin found 58 out of 122 cases reported supposed the clouds to be made of smoke. *Am. Jour. Psych.*, Jan., 1903.

[2] 17th An. Rep. Bur. of Am. Ethnol., 1895-6, p. 734.

[3] Brinton: The Myths of the New World, p. 88.

"There was only a vague shuddering feeling of going out some how, somewhere into darkness."

"Ashes always seemed cold and dead; something repulsive about them."

"The ashes made me feel sad and lonely. They seemed to say that all was cold and dead."

"Ashes always made me think of something cold and dying."

"When I saw the ashes in the stove I thought the wood or coal had died and the ashes was all that remained of them."

The next most common idea appears to be that ashes are made on purpose to spread on roads and paths, scour teakettles, etc., as expressed in 7% of the cases; or that it is a part of the wood or coal that will not burn, also 7% of the cases. 4% considered ashes as dust; and 4% delighted to play and roll in ashes. Individual differences also are comparatively numerous.

One says, "at bed time, according to custom, the living embers were taken out and placed one side. They were then completely covered with ashes or the fire was 'raked' as the process was called. I was always delighted to perform this task, for to me the embers were children being put to bed, and the ashes were the bed clothes with which they were covered. When there were not enough of these so-called bed clothes to keep the children covered the air got to them and these children of mine were dead in the morning."

Another says, "I always thought that the good coal was good children and wouldn't get burned, while the fine ashes and large cinders was the bad wood, after it was burned."

To one ashes were such dusty and dirty things that she had a dread of getting near them.

To another ashes were the substance of which man was made.

"I thought of ashes as being concealed inside of a piece of wood and when ashes began to appear, the outside covering strangely disappeared up the chimney, leaving the ashes behind."

A fear of setting fire to something in one case was always connected with ashes.

One used to think of ashes as naughty children that ran away and got lost.

"I always thought that the fire was in the coal and after the fire got out that was the ashes."

One thought that ashes were cold fire and if you heat them again they would make a hot fire.

"I thought of ashes just as if they were hot coals, so much so that I would not even touch them."

"Ashes were something that could not be burned and they were found in great quantities in both wood and coal."

"I had seen my brother sifting ashes and I thought the ashes must certainly fly all over the world; although I had no idea how large the world was."

"To one ashes were wood softened by fire, but she did not think of it in connection with coal at all."

One says, "the ashes made me feel lonesome and I wanted to leave the fire-place. It seemed to me as if that was all that was left of the men (seen in fire) who had been fighting; and the thought made me shiver."

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3. *The Ceremonial fires of Children.*

There is some indication in the returns that children to a slight extent use, or play with fire ceremonially. $\frac{9}{10}$ of 1% of the reminiscent returns only show this phase.

One was in the habit of making collections of paper dolls; when the collection became large the oldest ones were burned.

One says, "once in a great while the children had them when I was young but I never took part in them, I thought they were not right. I had an odd feeling about it being irreligious, or it was making light of sacred things and we should not do it."

Another says, "when about six years old I had a ceremonial fire. My doll baby had been sick and died. So my brother and I prepared to burn her. We had quite a long ceremony and then burned her. I felt very sorry and don't think I ever burned another."

Another says, "when one of my teeth came out I used to cover it with salt, and throw it into the fire to make sure of my getting a new one."

"At school I took part in a ceremony in which we burned special letters."

One used to select paper dolls she did not care for and lay them on other papers making believe that they were on a "funeral-pile" and she was a "cruel Indian."

One burned a doll she disliked very much and then had a funeral for it.

"One day I thought I would make a great sacrifice. So I kindled a fire and went into the house and got some three hundred cards and burned them. I thought a great deal of them and this was a great sacrifice."

Another says, "I had a little dog that was run over and after he was buried I continually wanted to dig him up and burn him.

IV. Children's Ideas of the Sun.

Of the 132 reminiscent returns 56% are positive, 44% negative. The term "positive" is applied to returns where the notion expressed is clearly not that of geography. Returns characterized by such terms as, the sun rising in the east and setting in the west; going round the world; giving light and heat; being a ball of fire; very large; a long distance off; going to China and the other side of the earth; and the like, were thrown out as obviously not the child's own idea. Returns of this nature were classified as negative. Beside the reminiscent returns 77 children were reported in connection with this topic. 30 of these were boys, average age 6.9 years; 47 girls, average age 7.5 years. A slightly lower per cent. of the children's reports are negative than in the reminiscent returns, 73% being positive. The percentage of negative returns for boys in proportion to their number is relatively larger than that of girls. While 46%+ of the boys are negative, only 29% of the girls are so reported. The average age of those reported as negative is also slightly higher than those reported as positive; as, boys average age 7.4 as against 6.9 years; girls, average age 8.6 as

against 7.5 years. Individual variation here is large. To quote from the reminiscent returns:—

One used to think the sun was a large star which gave light during the daytime and rested on a hill-top at night.

Another thought that when the sun rose and set he was very near the earth, and if she stood on the other side of the distant mountains she could touch him as he went down or came up.

One used to think the moon and the sun the same thing. She could not understand how it could change places so quickly.

"The sun seemed about as large as a dinner plate, and the world seemed shaped like a house and the sky formed the roof while we stayed on the floor. The sun seemed to pass over just under the roof and out of sight during the day, then while we were asleep I thought it must pass under us and get over on the other side where I saw it in the morning."

"The sun always seemed to me very large and warm, and I liked to think he was the stars' father; the moon was their mother. I used to wonder what kept them all up in the sky. I imagined the sun went under the earth every night."

"The sun seemed to me about as large as a very large snowball. Could not see why it stayed up in the sky and used to be afraid it might come down sometime near where I lived."

One use to think the sun was driven back into the east again, after setting, by horses very early in the morning before she was awake.

Another regarded the sun as a light which remained lighted during the day but which went out gradually each night.

"I thought the sun travelled back during the night over the same path it took during the day, but it could not be seen because it was hidden by the clouds."

"I thought that the sun was something like a great big gold dollar that watched everything which we did. I thought there was water behind the horizon, and that when it set, it sailed off on this water. I thought that it was very near. That the stars were the children of the sun. The biggest stars were the oldest children. The moon was something which laughed at us."

One thought it a mass of fire which went out at night when it was dark.

One thought the sun about three feet in diameter. It was about as hot as ordinary fire and God made a new every night and each morning put it in the sky.

Another considered it about as big as a dinner plate. She was never able to understand how it got its heat, for it was only a round pasteboard disc gilded and swung about the sky by means of a pulley. There was another similar disc, the moon, covered with silver gilding, which chased it about.

One supposed the sun to be held up by a string from above, but could not understand why she could not see the string. When the sun set it dropped over the edge of the earth and in some way got across to the other edge where it came up in the morning.

"It seemed to me that the sun travelled around the earth and that the moon chased it, because as the sun went down the moon came up."

Another imagined it was stuck up with glue and something pushed it along.

To one the sun came out in the morning and stayed out all day and went to bed at night. It was about as big as a dinner plate and about as hot as fire. It was the moon's brother and the stars were the little brothers and sisters. She also thought when about four years old that the sun was a hole in the sky through which the light of Heaven shone.

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Another thought the sun was father and the moon was mother, and the stars were their children.

One thought the sun rose in the morning and was very, very large, but grew smaller as it reached noon, and then larger again toward sunset.

"I thought the sun was a big brother to the moon and that the stars were the little babies and would become big boys and girls."

To one the sun was held in the sky by the clouds. At night they covered it over and it burned low.

"I thought the sun was about the size of our teakettle but very, very, very hot. At night I thought he changed into the moon. When he was pleased with the little children I thought he shone especially bright, but when angry would hide away, so when a rainy day came I tried to behave my very best so he would come out and smile upon me. The clouds I thought were his servants and the stars his little grandchildren."

"I fancied that the sun was of the same material as gold and about as big as a dinner plate. I thought that it moved over us in the daytime and went back to the east in the night. I thought God made it and that it had a light in it or around it like a lamp."

One thought it must be held up by chains. At night the clouds covered it over so it might be dark.

Another was always puzzled as to whether the sun went back the same way during the night, or whether it went under the surface of the earth.

One thought it went back at night when no one was looking.

"I thought the sun about as big as a wash tub and that it was something like a giant who wore a heavy armor. Through the day he was marching, but on cloudy days fighting. At night his armor was divided into the stars. He himself travelled back as the moon."

"I alwas thought the sun was the father and the moon the mother and the stars the little children. I thought the father wore a fiery garment which gave us light and when I first saw it set in the ocean I thought the light would be put out and we would have no more light."

The returns taken directly from children are of the same general type as these just quoted.

Thus a boy five, says the sun is father of the earth, the moon is the brother and the stars are the sisters.

A girl of six says that at night the sun goes down under the earth to heaven.

A boy of six thinks the sun about as hot as a coal-stove and that the good man made a big fire and keeps it burning all the time. The sun and the earth are the same thing. The earth sends the sun up into the sky. The sun comes back to the earth every night and goes out from it each morning.

Another boy of the same age says the clouds keep it from falling down.

A girl of seven says the sun lives in the clouds. "The moon does not shine much in winter, but I guess it would like to make the sun go down so it could shine longer. The sun has n't any "man in the moon" like the moon. The stars are green and the sun is red, but it gets yellow, Oh! a horrid yellow! after it is in the sky a long time. It almost makes me sick, the yellow, I mean. The earth is white and the sun is red. The earth is two or three times as big as the sun. The sun comes up in the morning behind the three houses over the lot. It sleeps in the clouds and when it wakes up it comes right up over the trees and makes everything warm. When it gets tired it goes into the clouds again."

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Another girl of five says, "the sun is bigger and hotter than the moon. The stars are pieces of the sun which shine at night and then go into the sun again when it gets daylight. When the sun sets it goes behind the trees and when it rises it comes up above the trees."

Another says, "the sun goes into the water. It is just warm. It is the crown of God's head."

One thinks God told the sun to go into the sky and then it went. She also thinks it is made of gold.

A five year old girl says, "the sun is mamma, the moon is papa. At night it flies home and sees its mamma. It comes back shining in the morning. The sun goes into its house. The house is made of dirt. The clouds go home. The clouds carry the sun over there where it shines. The clouds live with the sun. They are sister and brother. The stars are sons of the sun. They stay home and sleep, and at night come out shining. The stars live in another house than the sun.

The sun is as big as the bottom of a tumbler. The moon is the sun's sister. The stars are brothers of the sun. Somebody put the ladder up to the sky and then put the sun up there. A carpenter made the sun. There is a door in the sky where the sun goes in."

Another says, "The sun is as big as a dollar and about as hot as the stove. The clouds are the bed of the sun. The sun and the moon are both the same. The moon is the big sheep and the stars are the little lambs. The sun was made by getting yellow trunks and putting them together and then making nose, mouth, and eyes. Jesus hung on to the edge of the clouds and put the sun up there."

A boy says, "The sun comes up out of the ground in the morning and goes across the sky and then down into the ground again."

One thinks the sun is a big ball which the angels took up into the sky.

A girl three years old said of a sunset, "Did n't God paint it beau'-ful."

Another child of the same age says the sun is something in the sky that "goes out" at night and "makes it all dark."

On the phylogenetic side analogies are very striking and very numerous. To the ancients the earth was an island surrounded by the ocean. The sun rises out of the ocean, travels across the sky and sinks into the ocean at night. Homer speaks of the gates of the sun in the west. The sun is borne across the sky in a chariot drawn by four horses. He has a magnificent house or palace in the east. He gets back into the east by sailing half round the earth in a golden boat. He is the god who sees and hears everything, etc.[1]

Among the north American Indians notions concerning the sun are very many. The sun is the wigwam of the Great Spirit among the Algonkins. They do not pray to the sun but to the old man who lives there. Various relations exist between the sun and moon. Sometimes he is husband and the moon his companion, etc.[2]

In general among the Indians the sun is connected with light

[1] Smith's Dictionary, Classical Antiq., Vol. II, p. 375.

[2] Ling Roth: Natives of Sarawak, Vol. II, App., p. cxcviii. (Cited by Brinton, Religion of Primitive Peoples, p. 141.)

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but not identified with it. The light comes with the dawn and precedes the sun. The light god is not the sun god but its maker or cause.[1] Their creation myths generally represent the sun as having been made by the old people; kindled and kept going by the first men; freed from some cave by a friendly deity; started on its journey by the light god, etc.[2] The Tribes of the Northwest say that before the sun or anything was created there lived an original giant raven. One day this raven found the sun and put it in the sky where it has been ever since.

With the Kootenays it is either the coyote or the chicken hawk that manufactures the sun out of a ball of grease and sets it in the sky to pursue its course. The Brazilian Indian says the sun is a ball of bright feathers which some mysterious being shows during the day and covers up with a pot at night; and so on.[3]

We have inserted these few data concerning the sun here to show how far the primitive mind fails to connect the sun with the phenomena of heat and light.

We now turn to primitive ideas of cold.

V. Children's First Experiences with Cold.

Of the reminiscent returns, 132 in number, 35% do recall some special early experience with cold which is remembered as the first. This per cent. is a trifle higher than the corresponding instances of recalling first experiences with heat, which was positive in 28%. In the psychoses arising from coldness, as was found in thermo-psychoses, there are two types—pain toned, and pleasure toned. In the psychralgic psychoses the association complex appears to be in the background of consciousness while the temperature is strongly sensed. In the psychredonic psychoses as in thermo-psychoses, other factors of the association complex often quite overbalance the purely cold sensation and the experience becomes pleasurable. In 63%, the pain element is paramount as against 17% of the instances reported, where the pleasure element is the principal thing recalled, due to various associations of cold; as, a new sled at Christmas; going to ride on a cold day, the horse becoming white with frost; being rolled in a snowbank; the pure white snow sparkling in the moonlight and creaking under our feet; the beauty and silent motion of the falling snow; a sled ride, the snow piled high on each side of the path; the

[1] Brinton: Myths of the New World, p. 166.
[2] *Ibid.*, p. 167.
[3] Von den Steinen, Naturvälker Zentral Braziliens, p. 359. (Cited by Brinton, Myths of the New World, p. 166.)

snow looked warm and soft; tumbling in drifts and rolling down snow banks, etc.

In the remaining 19% of relatively neutral cases, the associations of winter are recalled exclusively, but the pain and pleasure element seems lacking. If these are percentages of types it would seem to indicate that painful sensations, at least in psychro-psychoses, are almost four times as likely to be recalled as pleasurable experiences; and that pleasurable and neutral experiences are almost equal in their tendency to be reproduced.

Expressions of curiosity or surprise occur in 12% of the cases. The following are typical of the reminiscent returns.

"I have a faint recollection of making snowballs when a child about four years, bringing them into the house to save them and the surprise I felt on seeing one small lump of snow and a large wet spot on the floor. I also remember catching snowflakes in my hand and trying to keep them from melting."

One tried to warm snowballs in a tin basin on the stove. She was much surprised on returning to find only water in the basin and thought somebody had taken them and put the water in their place.

Another was surprised to find that cold water would burn and warm chilled fingers the same as fire.

"My first experience with extreme cold was in trying to lift an iron latch one bitter cold morning. My hand stuck to the latch and I thought the latch had something sticky on it and wondered why I felt the pain afterward."

"The first time I remember snow was one day when my father carried me out to the sleigh, my little brother came running up to me with a snowball, I held out my hands for it, but one of my mittens came off, and I never shall forget the sensation I felt as the cold snow came in contact with my hand, and how I let it fall instantly, and commenced to cry, I thought it had burned me."

In addition to the reminiscent returns, the cases of 33 children are reported. 16 of these are boys, average age 3.8 years; 17 are girls, average age 3.4 years. Of these instances, 39% are painful; 27% pleasurable; 33% neutral. The ratio of the excess of pain-experiences over pleasure-experiences in the reminiscent returns to the corresponding excess of pain over pleasure-experiences in the cases cited in the children's reports is 2.5. The suggestion from this comparison appears to be that the excess of pain over pleasure with children is not quite half as great as represented by recalled experinces of adults with cold. Colgrove has shown that the class of individuals that remember pain-toned experiences best is nearly as large as the class that best recall pleasurable experiences. When, however, the pain-toned experience is intense or "vivid" it is far more easily reproduced in memory than a merely pleasure-toned experience. That psychralgic experiences are intense and "vivid" and also far more reproduceable

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in memory than psychredonic experiences, as the returns suggest, appears to agree perfectly with Colgrove's results.[1]

The main types of first reaction to cold are illustrated by the following quotations taken from the children's returns.

A boy of 6 years says, "Jack Frost bited me all over."
A girl 8 years, was sure the world was coming to an end when she saw the snow for the first time.
To another it was flour that God had sprinkled over the ground.
"Where does all this cotton come from? It is cold cotton."
The snow is "sugar," "white dirt," "salt."
The ground is covered with a coat of "whitewash."
A boy of 8, thought the old woman in the moon was dropping feathers from a goose.
A boy of 2, thought the snow was hot.
One wanted to hold her nose because she was afraid the cold would make it break off.
"The cold wind made him cry and run."
It is not nice. Feels "shivery." Her hands "*burn*" with the cold.
One thought that ice was glass.
Another that it was "paper which hurts." To one it was candy and she began to eat it. An icicle is a "cold pencil," etc.

In the children's reports 57% contain expressions of surprise or wonder, nearly five times the corresponding per cent. in the reminiscent returns.

The pain caused by high and low temperatures does not appear to be differentiated at first by the child. The cold "burns" him, just the same as the heat. There also appears among children to be a tendency to personify cold—the cold bites, etc. *Apriori* instances of caution are very few, occurring in only 6% of the cases. In the remaining 94% there was no hesitancy or fear of touching the snow or ice, but in most cases the sight of it brought the impulse to touch it or take hold of it, or to run into it.

VI. Jack Frost.

Just as fire is the chief agent or feature of thermo-psychoses, so for the child, the legendary Jack Frost appears to take the central place in psychro-psychoses. Judged from the per cent. of positive returns he is nearly as important and impressive as the fire itself; 75% of the reminiscent returns being positive for Jack Frost as against 78% positive for the seeing of faces and forms in the fire. Personal variation is large as a few typical cases will show.

One thought of Jack Frost as an "invisible person who came and pinched our hands and feet for a long while and then ran away, and then after he had pinched a great many people came back to me again."
"I always thought of Jack Frost as a misshapen dwarf with a large head, very red face and white hair."

[1] *Am. Jour. Psych.*, Vol. X, pp. 228-255.

"I thought of Jack Frost as a large man dressed in white garments whose chief delight was to bite little boys' and girls' noses."

Jack Frost was a very wicked man that caused a great deal of destruction in general and delighted in biting off people's fingers, and noses and toes.

"I imagined Jack Frost as a kind fairy so small as to be almost invisible, perfectly white, and making his pictures by running up and down the windows." He was kind hearted and loved children.

To one "Jack Frost was a kind of cold devil as Satan was a hot devil."

Jack Frost was a "tiny man" good and kind to little children.

"I always thought Jack Frost was like Santa Claus. Instead of carrying a pack on his back, he carried a pail and brush and painted all the windows as he went past."

"A little, thin old man, with white hair and white whiskers. He made pictures on the windows and put the frost on the ground."

An invisible being, who, when little boys and girls went out on cold days, would bite. I thought he lived somewhere in the air and only descended on cold days.

"A very little man—almost a dwarf, who seemed to fly all over the land and spread a white covering over everything—by means of his breath. He was dressed all in white, with a white cap, and all his clothing seemed to glisten like diamond dust."

"Somewhat like a Brownie, he wore a pointed cap and had very large eyes. I thought he was very kind unless we children were naughty, then he was likely to come in the night and freeze our toes. In winter he lived in a snowbank and in summer he lived in the ground."

"A man who could make cold weather, snow and ice at will."

"I thought of Jack Frost as of decided temperament, just, honest, kind and generous. He seemed to be a short, plump man, with a gray beard, blue eyes, very jolly and good humored. To me it seemed he had power to withhold or send cold weather, but he always did everything in kindness even though it appeared otherwise. When a morning was unusually sharp, then I thought he had been very near me the night before."

One imagined him as coming around in the night and sprinkling a sort of flour on the ground and this rose up in the air making it very cold.

"He lived way up north amid the ice and snow in the same region with Santa Claus, and he was some relation of his. I imagined him as being very small and able to travel very fast."

"I used to think of Jack Frost as a very tall, thin man, with long, sharp fingers."

"A big white monster about the size of a mountain near our house and in which he had his home. He always made a very loud noise, and I thought sometimes he carried a paint brush and painted the windows when he was good natured,"

"A little fellow about six inches tall who looked like the devil's imps. He always had a gray suit and carried a paint brush with a very long handle. I imagined he lived in the mountains and could travel through the air much faster than any bird and he would light on the window and cling to it by curling his toes under."

"Very patient because he painted the windows over and over again each night and never seemed to tire."

"A little skinny fellow who helped Santa Claus."

"An old man that came around early in the morning and marked on the window, and if I was awake early I would get up and wrap in the quilt and wait to see him come to mark the window."

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"I pictured him as coming to us with hands outstretched, putting his hands on all the windows and children's faces."

"Very cruel; I imagined him to be an old man with bent shoulders. He had a long gray beard. His hair curled over on his shoulders. His clothes were made of fur."

"I always thought of Jack Frost as a little white dwarf who rode over the snowdrifts, drawn by very small white rabbits in a little sleigh. I thought he did all his work on the windows with a funny little brush. It all seemed to be done in the night and I thought it represented the home and playthings of some other little girl. I have often tried to dig off the outside to see if he had scratched the glass. I thought Jack Frost was Santa Claus' little boy and that he was so small because his papa made him work so much nights. I do not know how I got this idea."

"An ugly old man who went about cracking water pitchers."

"A large black man that goes about before daylight."

One says, "When a child I thought of Jack Frost as being elf-like, gliding around at night, sleeping in a cave in the day. I thought when people were *good* he would paint the windows with pretty things, when we were *bad* he would not paint them at all. I was very much afraid he would nip or pinch my nose if I were bad."

To one, Jack Frost was a short, stout young boy who came around every stormy day and threw the snow about in the air.

To another he was a man with a red nose, and a cap on his head. He had a pipe in his mouth and carried a stick in his hand.

"Jack Frost seemed to me a queer little man, with a long peaked cap, I thought that he rode on the wind, and in the night his breath against the window-panes froze into queer shapes, sometimes he used a brush and painted with the vapor, shapes of trees, houses and hands."

"A short man, who lived in a small snow house, situated on a hill."

"A short, fat man, with a round, red face, always running. He came only in the winter time and had the power of turning everything white that he breathed on."

"Jack Frost was a great big icicle hanging from the roof of the house."

Beside the reminiscent returns, there were also 250 from children. Of these, 62 were from boys, average age 10 years, and 188 from girls, average age 7.5 years From these figures it would appear that Jack Frost reaches his maximum influence somewhat younger in the case of girls, than with boys. The larger number of girls giving positive returns for Jack Frost would further seem to indicate that he is a far more important personage with girls than with boys. The following quotations are typical of the children's returns.

"Jack Frost is cold. Makes wood, trees, fields and flowers on window-panes."

Another says, he comes at night lest he be run over by day. He is a great big, black bug and stays in a hole.

"Jack Frost is a snowflake, but not the same as those of the snow storm."

"Jack Frost is a tall, thin man, black whiskers, carries a cane and everything he touches with it cracks."

"He belongs to Santa Claus family, lives in the icebergs, and comes at night and nips grass short, so we don't need the lawn mower."

"Very small man riding through air on snowbird. Carries ice sword with which he opens chestnut burrs."

"A man made of snow, big eyes, and was carried by wind. Ice on windows, his frozen breath; was out after dark making children freeze who came outside."

Little man with ice sword and if people did n't let him in, he would stick it in through the wall. Rides on snowbird. "Nobody" told him this.

Lives at North Pole, is old, and very fat with long whiskers, dressed in fur. Makes rivers freeze, paints on windows, nips toes of little girls and boys.

He is jolly, has icicles for whiskers and hair. Whenever she sees icicles on houses, knows that Jack Frost lost one of his hairs. Has an icicle cane and cloak of snow.

Pretty cold fellow gives people red noses. Does n't do anything good but brings snow.

Is roguish and bites noses. Makes it hail and snow, draws pretty pictures on windows, bites hard and so kills plants left out over night.

A fellow with pleasant face and with a bag of complexion powder.

"I don't think there is any such a man as Jack Frost."

Very strong fellow. Has all kinds of shapes, like trees, bushes, birds, persons, houses, stars, always very cold.

To one he looked like an owl and came out of the ground.

"Some kind of an animal and bit off noses, fingers and toes; came round only at night. Walked right through the door when it was closed."

"He looks like a pigeon."

"Jack Frost looks like snow on the roof, and he can make the ground hard; makes it cold and slippery and gets through the cracks."

A boys says that he brought the cold, and lives in a garret. Made noise (howling of the wind). Afraid of being caught by Jack Frost.

"Jack Frost is little. I like him. He lives in Heaven with God."

"He 's waitin' to throw down more snow."

Again—he is a kind little fairy, makes trees and grasses look pretty and puts pretty things on the windows.

"Jack Frost paints windows with little ferns and leaves."

To 59% of the boys' returns and 27% of those of the girls, drawings of Jack Frost are added bringing out with great prominence some of his traits. These it would be interesting to reproduce. For instance, he rides a bird larger than he; carries a long spear, has a red nose, is covered with ice, is blowing a blast with distended cheeks. Skimming over the snow, his ear is frozen, his feet half melted, his hand is pinching a boy's nose or toe; he is melting, shaking down snow; only his hands and brush are seen above a drift, he is painting, his house is drawn, etc.

There are some marked sexual differences in tabulating the ideas of 234 children. Twenty girls and one boy make him resemble Santa Claus. Eighteen girls and no boys make him an elf or fairy. Girls make him small. He is more often pleasant, nice and jolly with girls, who give greater details about his dress. Boys tell more of his out-door work and life, and less often specify that he works by night. Only boys made him an indian or devil, rough, a hard worker; state that he

freezes the ground, makes sleighing, and only girls make him invisible and spirit-like, give him white hair, make him cross or to punish bad children, think him wholly bad, specify crust on the snow as his work; say he is quick or loves children.

There appears to be some sort of tendency in the child mind, as with the savage to demand some kind of *central agency* or *emanating source* for any kind of energy. The child apparently is not very much impressed with how the thing is done. He compensates for this deficiency seemingly by assuming a personal agency which accounts for everything. Brinton conceives animism or the universal conception of primitive man that conscious volition is the ultimate source of all action, the underlying principle.

Jack Frost in story and myth has a very voluminous literature. The following very few of the many accounts of Jack Frost are from Russian myths, by Ralston. To the Russian peasant, Jack Frost is as real a person as to the child. On Christmas Eve the oldest man in the family takes a spoonful of kissel, a kind of pudding, and putting his head through the window cries, "Frost, Frost, come and eat kissel. Frost, Frost, do not spoil our oats; drive our flax and hemp deep into the ground." The Tcheremisses are afraid of knocking the icicles off their houses, thinking if they should do so Jack Frost would get angry and freeze them to death. The frost is often described as a mighty smith that forges strong chains with which to bind the earth and the waters. An antique way of saying, the river is frozen over, was, "the old one has built a bridge without an ax or a knife." A peasant goes out and finds his field of buckwheat broken down. Knowing that Jack Frost has done this he sets out to find him to complain of his damage. After wandering about in the forest for a long time at last he comes to a hut made of ice and covered with snow and hung with icicles. Frost, an old man, dressed in white, answers to his knock, etc. In stories, generally, Jack Frost is a hero in some escapade, or he bestows gifts on good people and visits ills on bad people. He appears to be specially active in behalf of children that are made fun of or ridiculed by their companions, etc. He appears to have a special hatred of hypocrisy, pride, and selfishness.

Although the West Aryan nations are supposed by some authors to have originated in Central Asia, the climate and scenery of the north has had by far the greatest influence in shaping their beliefs. It is among the northern peoples that we find the cold personified as well as the fire by contrast. This phase appears to be far more often absent from the myths of southern races. The dangers incurred in hunting and fish-

ing, the cold, penetrating storms, the suffering and privation of long, cold winters made our ancestors think of cold and ice as malevolent spirits, while equally with the races of the south fire is deified and given a large place for its heat and light. Thus in northern cosmology earth was created from a mixture of fire and ice. Summer and winter are the rulers of the seasons. Summer inherited a gentle disposition and was beloved by all except winter who was his deadly enemy. Winter was a very disagreeable god; personified by the icy wind. As the cold winds always came from the north, these races pictured a giant clothed in fur and eagle plumes sitting at the extreme northern edge of the heavens. Whenever he raised his arms or wings the cold blasts darted forth and swept ruthlessly over the earth blighting all things with its icy breath. Uller, the winter god, is often represented as travelling on broad snow-shoes or skates, clothed with thick furs. He supplants Odin during the winter months. In summer Odin drives him to the frozen north or tops of the Alps. Uller is very parsimonious and never bestows any gifts on men. He is also god of death. The people visited Uller's shrine in November and December to entreat him to send a thick covering of snow over all lands as a promise of good harvests.

Among the North American Indians myths of snow and winter occur, one of the most typical being in the Algonkin legends. The hero Glooskap goes very far north one day where all is ice. In a wigwam he finds a very great giant whose name is Winter. Glooskap entered the hut and sat down and the winter god gave him a pipe. He smoked, and the giant told stories of the olden time—the charm was on him, it was frost. He talked on and froze; Glooskap also slept and did not wake up for six months. Then the charm fled and he set out for home which was to the south. At every step it grew warmer and the flowers came up and began to talk to him. Soon he returned to the wigwam of Winter but now he had the summer in his bosom. Very soon the sweat rolled down Winter's face and then he began to melt and finally entirely disappeared as also did his wigwam. Then everything awoke; the grass grew and the fairies came out and the snow ran down to the rivers carrying the dead leaves. Such legends are legion in number.

VII. Fact and Explanation.

Total number of returns 216, of which 105 were from boys, average age 11.7 years; and 111 from girls, average age 11.4 years. From the character of the answers to the following questions almost without exception, it would appear that child-

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ren of this age considered them entirely irrelevant. A few quotations will show the general nature of the answers.

Why Does Cold Turn Water to Ice?

Cold comes in contact with the water and gets into it. So we can keep it in the summer. Cold makes it harden. So we can go skating in the winter. God wants it to turn to ice. Cold turns water to snow, this freezes and makes ice. Jack Frost blows his breath on the water. Because it is cold. Because it freezes. Oxygen in it freezes. Because it is a cold vapor. Because the temperature is low. The cold goes right through the water and holds it there. The vapor comes together and freezes. Cold rains and it freezes. Because the moisture is around. Water can't go so fast when it gets cold, so the wind makes it freeze. Because the cold is so strong, etc.

Why Does the Heat Turn Water to Steam?

Because the heat makes it hot so that it will turn to steam. Water in the teakettle has to boil a little and then it turns to steam; steam and smoke are the same. Don't know how, never looked at it. Because the stove is hot. Because the water is so hot. By heating it. Because it boils. Water gets hot and that's what makes the steam come out. The water dries and that makes the steam. Because the air mixed with the water. Because heat is something like fire and when you put water on fire it makes steam. Because the heat is terrible hot. Steam is a mass of something or other like smoke, when cold things touch hot things they begin to fizzle and sizzle and steam comes. Because it thaws it out and melts it. Because it is so warm it turns the water to steam, then the steam turns into vapor. Water gets overheated and turns into steam, etc.

Why does the Air Shake on a Hot Day over a Hot Stove?

It is the sun moving. To keep us cool. The heat makes it. Cold air gives the hot air a chill. Heat dries the moisture and the oxygen. Because the cold oxygen gets heated. No cool air to cool it. Because it is cold and the warm shakes it. Heat dries it and the cold puts it in motion. Because it can't go down to the stove. Because there is no draft. Because of vapor coming out of houses on washing days. The heat is moving and makes it move with it. Air around it is hot and it has no place to go. Heat dries the moisture up. It shakes vapor-steam. Tries to get away from the hot place and can't. Hot air fights with the cold air. The earth shakes as it makes the air shake. The heat shakes because it is so thick. The wind is stronger than the heat. Tiny fairies in the air trying to run away from the sun. The cold air comes down and the warm air tries to get away, etc.

The general negative or vague character of these three groups of answers as to *how* the thing is done—what the *mechanics* of the phenomena in question are—would seem to indicate that the mechanical notions of the child up to about 12 years of age, at least, are practically nil. The numbers of the boys and also their average age being so near that of the girls, the indication is that boys up to this age show not the slightest superiority in mechanical insight or capacity over that of girls, both being equally deficient.

This same phase was also indicated in children's ideas of the

sun. While the fact of being impressed with the motions of the sun was very general, attempts to explain it were rare.

That the child is profoundly impressed up to the dawn of adolescence, with *facts* in the large, is indicated by the marked interest shown in every phase which the questionnaire covered; the fire itself, the noises of the fire, the smoke, the ashes, the snow, the ice and frost; but also that the explanation of facts from the adult standpoint finds little capacity for comprehension by the child.

The same phase also appears in children's drawings and descriptions of thermometers of which the following are typical.

(a) Description of the thermometer.

F., 14, 7—Line moves up and down, M., 11—Medicine in the tube. M., 10, F., 14—Color in the tube. F., 10—Silver rod in the tube. M., 13—Black glass. M., 12—Pointer. M., 11—Little finger. M., 12—Oil in glass, moves up and down. M., 8, F., 13—Tube filled with water. M., 11, F., 12—Mercury or alcohol. M., 8—Purple thing. M., 12—Little fluid. 2 M., 8—Stuff. M., 7—Boiled snow. 23 boys, 12 girls, quicksilver—little mark moves up and down, M., 7—Little silver thing. F., 8—"Silver-looking water." M., 7—Red glass. F., 7—Red water. M., 8—Red ink. F., 13—Red liquid. 8 boys, 4 girls—Made of wood, glass, or tin. 2 M., 8, 9—Figures mean heat and cold. 2 F., 11, 8—Little thing inside rises and falls. 3 M., 14, 13, 11—Heat causes to expand and cold to contract.

(b) What the Thermometer does.

3 boys, 4 girls. Tells the temperature of the weather. F., 12—Tells the heat of the temperature. 6 boys, 5 girls—Tells the temperature of the room, hot or cold place. 5 boys, 13 girls—Tells what kind of weather. 63 boys, 55 girls—Tells whether, how, or when, it is hot, warm, or cold. F., 13—Temperature affects the thermometer. 6 boys, 6 girls—Hot day it goes up—cold, down. 2 F., 13, 7—Tells or regulates the heat of the room. 3 boys, 8 girls—Tells the number of degrees the weather, air, or climate is. F., 8—Affects the weather in some way. M., 7—Change in thermometer regulates weather or temperature. M., 5—Tells the time of the heat. M., 7—Tells how hot you are and how cold you are. M., 9, F., 11, 10—Tells how much above and below zero it is. F., 13, 10—Used in sickness. M., 11—Can't explain it.

Some of the general descriptions are as follows:—

F., 9. The thermometer has a little bottle of water in it. Tells when it is cold and warm; tells time. It is a heat and cold tool—is pushed with our hands.

M., 8. Saw mercury go up when finger was placed on bulb. Asked what made it—answered "finger."

F., 8. Some kind of a wonderful thing which affected the weather; had a kind of awed feeling about it.

M., 8. Heat makes the temperature higher and higher—makes the stuff hot and that makes it go up.

F., 7. Black line in the middle pushed the heat up and made it real hot.

F., 5. Thing that tells how hot it is; and if there is a big thermometer, why its awful hot.

M., 7. Long glass tube in the middle in which is a piece of red

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glass. When the red glass moves up the weather gets warmer; down, colder.

M., 8. Reason we have the thermometer is because we can tell the heat and cold.

M., 8. Thermometer tells when it is hot or cold as the clock tells time. Made of glass, tin and wood; glass tube filled with water.

F., 21. As a child—red liquid meant blood—thought they had the same temperature.

F., 9. Tells us the heat of the day so we'll know whether we're freezing or roasting to death.

F., 10. Is to tell if it is too warm or too cold in any place.

M., 14. To show how many degrees it is warm or cold. If the quicksilver stands below zero it is cold; if above, it is warm, etc.

Thus it appears that children as early as five years do understand that there is some connection between the weather and the thermometer. The child's first impression seems to be that the thermometer controls or regulates the weather. A considerable percentage of cases in boys and girls from five to eight years show this phase. From eight years on the notion of the weather affecting the thermometer appears to be well established. The child seems to be very much impressed with the fact as is shown by the descriptions, but HOW the weather affects the thermometer scarcely received a passing thought. This again emphasizes the point that the child's mechanical capacity is very slightly if at all developed up to at least 12 or 13 years.

Very analogous is the condition in primitive man and the savage. His notion of machinery is almost nil. He does not until very late pass the stage of a few simple tools; as, crude implements for cutting, smoothing, digging and perforating, a few simple devices for grasping and holding, and nearly any stone of convenient size for pounding, crushing and fracturing. With civilized man the age of mechanical invention *par excellence* also comes late, so late in fact, that if we are now living such a period, the past generation can almost be said to have seen its beginning.

(c) General Analysis of Drawings of the Thermometer.

78 boys, 45 girls thermometer drawn with mecury; 20 boys, 35 girls, without mercury. 33 boys, 17 girls, mercury in both bulb and tube. 7 boys, 8 girls, mercury only in bulb. 2 boys, perfect thermometer. 18 boys, 22 girls, drawn with case, tube and mercury tube extending all or part way, points poorly developed. 16 boys, 6 girls, the same with no points, bulb poorly developed. 6 boys, 1 girl, case, tube, and mercury only. 6 boys, 13 girls, case and no mercury, points and numbers poorly developed. 6 boys, 6 girls, case with mercury, tube, numbers extending part way. 4 boys, 5 girls, with mercury or tube or both; points and no numbers. 20 boys, 12 girls, with mercury, tube, marks and no numbers. 54 boys, 83 girls, case and numbers only. 3 boys, 1 girl, case only, etc.

This seems to further emphasize the point already noted

that the child is not a close observer but rather sees things in the large, and that his ideas of the simplest of all measurements of temperature are dim and hazy.

VIII. WHICH IS WORSE, A HOT OR A COLD DAY?

Of the total number of answers 215, 60% consider a hot as the worse, as against 39%, who think a cold day worse. 75% of those preferring a cold day to a hot, give reasons. Of these 80% give, as the sole reason, the unpleasant, disagreeable, or painful feelings experienced on a hot day; while in all but 14% of the reasons given, this idea is expressed. In the cases of those who dislike cold weather more than hot, these percentages are somewhat different. Here 63% also give reasons for their dislikes of cold. In 42% of these cases, the feeling element is the sole reason given; and is expressed in some form in 57%. Of the total number of answers to this question, 6% only find heat and cold equally disagreeable.

If Obliged to Choose, which would you Prefer, Freezing or Burning to Death?

The same idea is still further expressed in the answers to this question. Of the total number of replies, 133, 88% prefer freezing to burning, leaving 12% who would rather be burned. Here, also, for those preferring a death by cold, the feeling element is the principle and almost the only reason. Of those preferring burning to freezing, 58% give a reason. 70% of the reasons consider burning far more rapid and hence easier than freezing. Of the other reasons given, one would rather be burned, for then he would not have to be buried. Another, "rather burn because my soul might go to heaven." Another, "If I froze I would get squeezed up in a little lump like iron;" hence would rather burn, etc.

Why high temperature should be more painful than low temperature and how this apperception has evolved in the race is unexplained. The temperature norm lies much nearer the pain limit in its upper range than in its lower—that is, in lowering the temperature the pain limit is not reached nearly so soon as in ascending the scale from the somatic norm. In experimenting on the temperature and pain senses Pace found that heat began to be painful at 48° C.[1] His steadiest pain results were obtained with a temperature of about 55° C., while 60° C. was too uncomfortable for experimentation. Thus the pain limit is only about 10 (C.) degrees removed from the normal. To go down the scale from the bodily norm of temperature about 20 (C.) is required to reach the normal atmospheric

[1] Pace: Report of Second Annual Meet. of Am. Psych., p. 25.

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temperature and the pain limit must lie considerably below this point. Thus the pain limit for low temperature is considerably more than twice as many (C.) degrees removed from the somatic temperature norm, and likely much more than three times as many (C.) degrees as lies between the norm and the upper pain limit. The organism of warm blooded animals is essentially heat manufacturing, and is comparatively poorly equipped for refrigeration. Cold can be resisted much better than heat.

Again children are much more carefully guarded from extremes of cold than of heat. These three facts may, in a degree, explain the apperception of heat as more painful than cold.

What would Happen if it kept on Slowly Growing Hotter and Hotter?

Ninety-eight returns, of which 43 are boys' average age 10.5 years; 55 girls' average age 11.5 years. The following tabulation shows the variety of the answers. It is arranged as near as possible like the order developed in the returns. These returns were gathered in mid-winter and the starting point is, therefore, with snow and ice.

1st. Ice and snow will melt; 2 boys, 5 girls.
2d. Could n't slide and coast; 1 boy.
3d. It would begin to rain; 2 boys, 1 girl.
4th. People will go to work; 2 boys, 1 girl.
5th. Thinner clothes; 2 boys, 6 girls.
6th. Plants, trees and birds will begin to grow; flowers will come; and birds and fruits; 8 boys, 8 girls.
7th. Everything will grow up to the North Pole; 1 boy.
8th. Rivers, brooks, springs, wells and ponds will dry up; 12 boys, 19 girls.
9th. Plants will not be able to grow any longer; 4 boys, 4 girls.
10th. Butter and soft things will melt; 2 girls.
11th. People will sweat; 1 boy, 1 girl.
12th. Faces and hands will get red; 1 girl.
13th. Scorch your hands; 1 boy.
14th. Faces will grow dark colored; 1 boy, 2 girls.
15th. Negroes' skins will grow black; 1 boy.
16th. People will store up food; 1 girl.
17th. Electric fans will be used; 1 boy, 1 girl.
18th. Will have to keep fanning all the time; 1 boy.
19th. Ice will have to be used; 2 boys.
20th. Animals will have to be sheared; 1 boy.
21st. Cannot go to school; 2 girls.
22d. Water will grow hot; 3 boys, 2 girls.
23d. People will stay out of doors; 2 girls.
24th. People will cook out of doors by means of the sun; 1 girl.
25th. Cannot eat meat; 1 boy.
26th. People will be unable to work; 2 boys, 5 girls.
27th. Stores will close; 1 boy.
28th. Vegetation will die; 11 boys, 15 girls.
29th. People will have diseases, as fevers, etc.; 3 boys, 5 girls.
30th. Dust will become thick; 1 girl.
31st. People will smother; 3 boys, 1 girl.

32d. People will roast; 2 girls.
33d. People will melt; 3 girls.
34th. People will get sun-stroke; 1 girl.
35th. Hen's eggs will cook in the nest; 1 girl.
36th. Volcanic eruptions will break out; 1 girl.
37th. The ocean will dry up; 1 boy.
38th. Animals will die:
(a) of hunger; 3 boys.
(b) of thirst; 2 boys, 1 girl.
(c) of heat; 4 boys, 10 girls.
39th. Emigration to all sorts of cooler places; ice houses, refrigerators, the country, North Pole, etc.; 6 boys, 1 girl.
40th. Earth will crack open; 1 boy, 1 girl.
41st. People will die:
(a) of hunger; 8 boys, 12 girls.
(b) of thirst; 4 boys, 7 girls.
(c) of heat; 17 boys, 16 girls.
(d) of fever; 3 boys, 2 girls.
(e) of thick air; 1 boy.
42d. Everything will melt; 1 boy, 2 girls.
43d. World will come to an end; 1 boy, 1 girl.
44th. Everything will either burn at the last; 12 boys, 10 girls; or, the world will be left a desert; 4 boys, 4 girls.
45th. Finally, the sun will burn out; 1 girl.
Expressions of pity; 1 boy, 13 girls.

In the development of this progressive universal catastrophe, the most marked reaction of the boys would seem to be that of emigration; as 14% of the boys' returns develop this phase as against 1%+ of the girls'. The girls appear to vary from the boys in the development of the sentiment of pity; shown in such expressions; as. that would be a very sad thing to happen; people will be glad to see the fruits, flowers, etc.; hopes such a sad thing may never happen; hopes God will send food to the starving people; people will suffer; it will be disagreeable; no enjoyment for us to live; I feel so sorry for the poor; it would be terrible; and the like. These expressions occur in 23% of the girls' returns as against 2% of the boys'.

What would Happen if it kept on Slowly Growing Colder and Colder?

The total number of answers to this question was 130, 53 of which were from boys, average age 10.3 years; and 77 girls, average age 10.6 years. The answers are arranged as nearly as possible to the order developed in the returns. The starting point is mid-winter, the returns being gathered in February.

1st. People will salute each other when they meet with—"Turning cooler to-day!" 1 boy.
2d. Caps will be pulled down over the ears; 1 boy.
3d. It will begin to freeze. Snow, ice, and frost will be everywhere; 10 boys, 11 girls.
4th. Nothing will be able to grow; 9 boys, 5 girls.
5th. No more rain will fall; 1 boy, 2 girls.

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6th. Rivers, lakes, ponds, springs and wells will freeze up; 20 boys, 18 girls.
7th. Have fun skating, sleighing, and coasting; 4 boys.
8th. Icebergs will be up in the north; 1 girl.
9th. People will catch cold; 1 girl.
10th. People will put on thicker clothes, wrap up, wear furs, etc.; 15 boys, 11 girls.
11th. Cannot go to school; 4 girls.
12th. Cannot go out; 9 boys, 9 girls.
13th. Sit by the fire and talk; 1 boy, 3 girls.
14th. People will begin to get thinner on the streets; 1 boy.
15th. Wagons cannot go about the streets; 1 girl.
16th. Trains will be blocked up by the ice; 1 girl.
17th. Birds and animals will migrate south: 2 boys, 5 girls.
18th. Flowers and delicate plants will freeze; 4 boys, 1 girl.
19th. Cabbages will freeze; 1 boy.
20th. Cattle will have to be fed often; 1 girl.
21st. All the water will freeze up so that there will be none to drink; 6 boys, 12 girls.
22d. People will have to melt snow and ice to get water; 4 boys.
23d. Coal miners will have to stop working; 1 girl.
24th. The south wind will freeze; 1 boy.
25th. Many vague fears will be common. People will begin to think the North Pole has sunken in and that we have shot round the globe to that point; 1 boy, 1 girl.
26th. People will start for the woods to get more wood to melt the snow and ice and will freeze on the way; 1 boy.
27th. Fuel will have to be piled constantly on the fire; 1 girl.
28th. Animals from the north will migrate here; 1 boy, 1 girl.
29th. People in the country will be unable to get anything to eat; 1 boy.
30th. Vegetation will die; 8 boys, 14 girls.
31st. Will have to eat strips of fat meat; 1 girl.
32d. Could not work out of doors; 3 boys, 4 girls.
33d. Shops and mills will have to "shut down;" 1 boy.
34th. Business will come to a standstill; 3 girls.
35th. Money will give out; 1 boy, 1 girl.
36th. The price of food will rise so high that nobody can buy it; 1 boy.
37th. Stores will close; 1 boy.
38th. There will be famine; 2 boys.
39th. Dense ignorance will prevail because the children cannot go to school; 1 girl.
40th. Trees will grow dwarfed; 1 girl.
41st. Fuel would be used at so rapid a rate that soon the forests would disappear and wood will cease; 1 boy, 2 girls.
42d. Be no oil to burn; 1 girl.
43d. Grain will freeze; 2 boys, 1 girl.
44th. Little children will be sick; 1 girl.
45th. People will be dwarfed; 1 girl.
46th. People will be sick; 2 boys.
47th. Commerce will stop; 2 boys, 1 girl.
48th. Navigation will cease; 7 boys, 1 girl.
49th. Water pipes will freeze and burst; 6 boys, 1 girl.
50th. Birds will die and there will be no more birds' songs in the morning; 1 boy, 2 girls.
51st. The rats will freeze out; 1 boy.
52d. Boys and girls will go south; 1 girl.

53d. It will then be a Klondike; 1 girl.
54th. Be worse than a Klondike; 1 boy.
55th. The mercury will freeze; 1 boy.
56th. The wind will blow; 1 girl.
57th. There will be blizzards; 1 boy 1 girl.
58th. People will be imprisoned in their houses by the snow and ice; 1 boy.
59th. The weight of the snow and ice will break down the houses; 1 boy.
60th. Animals will die:
(a) of cold; 11 boy, 13 girls.
(b) of hunger; 2 girls.
61st. The ocean will freeze solid; 1 boy.
62d. People emigrate south; 1 girl.
63d. No fire can burn—it would freeze; 2 boys.
64th. People will be unable to breath because the air will get so thin; 2 boys.
65th. People will get torpid; 1 boy.
66th. Little children will freeze; 4 girls.
67th. People will commit suicide to keep from starving; 1 boy.
68th. People will die:
(a) of cold; 41 boys, 47 girls.
(b) of hunger; 9 boys, 13 girls.
(c) of thirst; 3 boys, 4 girls.
69th. Not a living thing will be left on earth; 3 boys, 1 girl.
70th. Everything will freeze; 9 boys, 14 girls.
71st. Freeze our bodies to nothing; 1 boy.
72d. Iron bridges will draw up; 1 boy.
73d. The dead will lie unburied; 1 girl.
74th. The ruins of people's houses will crumble in decay; 1 boy.
75th. Only the barren earth with snow piled high will be left to tell the story; 1 boy.
76th. The mountains will crumble away; 1 boy.
77th. The world will be left a barren plain with great rivers and oceans of ice; 1 boy, 2 girls.
78th. Everything will be stiff; 1 girl.
79th. Finally, the earth will be left a block of ice; 1 boy, 1 girl.
80th. At the end the sun will cool off and all will be darkness; 1 girl.
Expressions of pity; 1 boy, 6 girls.

Neither in the corresponding questions on progressive heat nor in these here considered, does the element of time seem to enter the child's ideas, except in the case of one boy of thirteen. He says, that in 100 years everything on earth, except at the equator would freeze. It would take 1,000 years to freeze every living thing on earth including the equator.

These answers seem to warrant the conclusion that the child does have some notion of a wide range of temperature reaching far down the scale and also having a very decided effect on matter and the world in general as well as on life. This development, however, is clearly not the notion of any single child either in the case of progressive heat or cold. Each child contributes only a fraction of the notion as a whole; yet, however vague the notion of the individual child, the notion as a

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whole is in the child-mind taken collectively. The fact that these individual fragments when put together make a logical system is suggestive of what likely is the way in which myth, legend and religion grow up with primitive man.

Another noticeable suggestion appears to be that facilities for resisting cold are much more effective than were developed in the corresponding answers on progressive heat. The movement is nearly twice as slow. Expressions of pity are far less numerous and the pain element is also much less apparently.

This seems to be quite in line with the current idea that high temperature is more painful than low temperature. This is emphasized by the answers, as we have seen, to the questions asking which is worse hot or cold weather; and which mode of death is preferable, burning or freezing.

The questions which brought out these last two sets of answers were suggested by the fact of the enormous range of temperature, now well established, as compared with the very narrow biological and even narrower normal or optimum range of man and the warm blooded animals.

The normal temperature of man varies from 36.25° to 37.5 ° C (97.2°-99.5° F).[1] A temperature of 105° F is considered dangerous, often fatal. Below 96° F is a collapsed temperature, 95° F, likely to be fatal.[2] This temperature varies very slightly with external conditions. The normal temperature of other warm blooded animals is very near that of man. From the compilation of temperature as found by Gavarret the lowest was in the apes 35.5° to 39.7° C; the highest in birds generally, 44.3° C.[3] Above these temperatures every-day experience has brought some notion of a higher range of temperature, as that of the flame, etc. The measurement of high temperatures has, however, until comparatively recent times, been considered as not only very difficult, but uncertain as well. High temperatures can now be controlled and measured with a fair degree of accuracy.

One of the most important investigations in high temperature was that of Osmond. He discovered two recalescent stages in iron; one taking place at about 750° C, the other at about 900°. A third transformation in iron was discovered by Ball at 1,300° C.[4] The boiling point of Bismuth has been found at 1,500° C. The temperature of the electric arc is from 3,000° to 4,000° C;[5] while the temperature of the sun, according to the formulæ of Stefan and Le Chatelier, is about

[1] American Text-book of Physiol., p. 577.
[2] Testimony of nurses and physicians generally.
[3] Am. Text-book of Physiol., p. 576.
[4] Le Chatelier: High Temp. Measurements, p. iii of author's preface.
[5] Daniel: Text-book of Physics, p. 654.

8,000° C[1] (14,432° F). Comparatively recent development in liquifying gases has pushed the lower limit far down the scale.

Ozone has been found to liquify at—100° C, oxygen at—130° C, and nitrogen and carbon mon-oxide at—136° C. Oxygen has been found to boil at—184° C, carbon mon-oxide at—186° C, air at—192.2° C, nitrogen at—194.3° C, and finally hydrogen at—243.5° C, within practically 30 degrees of absolute zero (—273° C,—460° F), the theoretic death-point of matter. In the neighborhood of the lower limit of temperature, physical and chemical laws appear no longer to hold. The resistance of pure metal to electricity falls off. At —200° C yellow phosphorus and liquid oxygen show no signs of reaction; photographic action may take place at—180° C; but reduced by about 80%, etc. Devar expresses it thus: "At a temperature of—200° the molecules of matter seem to be drawing near, what might be called the "death of matter" so far as chemical action is concerned." From absolute zero—460° F to that of the sun at possibly 8,000° C or 14,432° F, the range is 14,892 (F) degrees. The variation in temperature is hardly more than 125 degrees (F) even in extreme conditions from the hottest summer day to the coldest winter day of the temperate zone. This climatic range would be less than 1% the range known to exist, while variation in temperature in the normal human body would be a little less than $\frac{1}{50}$ of 1% of this range.

That the child does have some notion of range of temperature reaching far beyond that of his immediate experience the returns clearly show; also that the child has some notion of its effect on matter. Where the child gets this idea and what its meaning the race consciousness is problematical.

Analogies occur in the prophecies of destruction of the world by fire which are very common in eastern countries.[2] The Christian doctrine of the final destruction of the earth by fire is also analogous.[3]

Some analogies of a world catastrophe by cold also appear in mythology. One of the most typical is perhaps that of the Ragnarök or Twilight of the Gods.[4] "In the first place shall come winter during which the snow shall fall from the four corners of the world. The frosts will be severe, the wind piercing and the weather tempestuous. The sun shall impart no gladness. Three such winters shall pass without the intervening of a single summer. Then will follow three similar winters, during which war and discord shall prevail over the whole world. A

[1] Le Chatelier: High Temperature Measurements, p. 194.
[2] Grimm: Teutonic Mythology, Vol. II, p. 804 *et seq.*
[3] II Peter. 3:10.
[4] Grimm: Teutonic Mythology, Vol. II, p. 813 *et seq.*

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wolf shall devour the sun, and another wolf the moon. The stars shall be hurled from the heavens and the earth so violently shaken that trees will be uprooted and the mountains totter and tumble from their foundations," etc.

Such a prophecy may be a distant echo from the glacial or ice age through which man has undoubtedly passed, and according to many present-day geologists he is likely to again experience such a period. Leaving his warmer home he at least followed the retreating ice in his northward migrations.

IX. Drawings.

As a supplementary way of obtaining children's ideas, they were asked to draw; 1, a hot day; 2, a cold day; 3, the sun on a hot and on a cold day; 4, a snow scene; 5, an ice scene; 6, to write a composition on A Summer—, and A Winter Day. In analyzing the data thus obtained the following points of comparison were noted.

(a) The feeling element expressed.

(b) The nature of the associations.

These are divided into the three following classes. 1. General or benal associations; as, in summer, hazy landscapes, blazing suns, dust, thunder, etc., which would be obvious to any one. 2. Particular or personal associations, which are local and individual; as, the home, the trees about it, work in the fields, the barnyard, the road to school, the schoolhouse itself, favorite haunts, prominent buildings, etc. 3. Indirect associations. These are derived in different ways by the child; in part from reading and instruction, and in part from stories and the imagination. This class finds at chief representation those pictures of an ice scene in which an arctic landscape takes the place of the more familiar objects.

(c) The development of sports and games.

(d) The effects of temperature on vegetation.

Although these points are not exhaustive they represent the main features developed and appear to form the fairest schedule for comparison, which is the chief object in view.

Total number of returns, 2,299. 47 per cent. of these are from boys; 53 per cent. from girls. The ages range from 3 to 17 years, with an average age of 11.3 years for the boys, and 11.4 years for the girls.

From an analysis of the drawings of a hot day it appears that the feeling element is paramount. This phase is by far the most commonly represented, and quite universally the feeling is shown as painful or unpleasant. The drawings that show this bring out very prominently great drops of sweat, fans, sunshades, a very large sun with many rays heavily drawn especially toward the persons. Summer drinks, wells, ham-

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mocks, wilted trees and plants, mosquitoes, ice-cream stands. Total number of drawings of a hot day, 570; of these, 33% express the feeling element alone. In 54% it is the principal idea expressed and finds expression in some form in 67%.

Those that show association of wider range are a garden with many plants, a boat scene, a walk over a landscape, a thunder storm, a cyclone, rays from the sun like a thick shower of arrows, the sun itself sweating and showing a beard of rays reaching to the earth, harvesting, bathing, a farmyard, birds, animals, school scenes, summer industries, picnics, washing day, fishing, hunting, a very few tropical scenes. The sports and games of summer are almost entirely by boys, with swimming far in the lead, while the fan and hammock are hardly less prominent in the drawings of girls. Nearly all assume extreme intensity of heat as if most impressed by the exceptional. Diving leads all other activities for boys. In the drawings of a cold day, 560 in number, the percentage of the feeling element and the general associations, fall below those of heat. The percentage of sports and games rises above that of hot weather six or seven times. In other respects the differences are slight. Where in the drawings of a hot day we have luxurious vegetation, about the same percentage picture vegetation as dead or absent in the drawings of a cold day. The following percentage tables will show these contrasts.

Drawings of a Hot Day. Total Number of Drawings, 570.			
	1	2	3
F.	33	54	67
G. A.	6	11	33
P. A.	1	2	15
I. A.	$\frac{1}{10}$	$\frac{1}{10}$	0
S.	$\frac{1}{10}$	1	3
L. V.	4	10	12

Drawings of a Cold Day. Total Number of Drawings, 560.			
	1	2	3
F.	26	38	52
G. A.	5	11	30
P. A.	1	1	19
I. A.	$\frac{3}{10}$	0	0
S.	7	6	6
D. V.	6	11	12

In the above, F. = feeling, G. A. = general association, P. A. = particular association, I. A. = indirect association, S. = sports and games, L. V. = luxuriance of vegetation, D. V = dead vegetation. Column 1 = the only idea expressed. 2 = the principal idea expressed. 3 = the idea recurring as subordinate.

Many of the drawings of a cold day show only a landscape, or road, or house with no person in sight. Smoke from chim-

neys much in evidence. Of course snowstorms with relatively immense flakes, sometimes as large as the houses, are common and there are drifts almost covering the houses and house-tops. Country scenes, fires, much and usually very dark or black clothing abound, and by far most scenes are rural.

There also appears to be a slight difference in the psychoses expressed in the drawings of a snow scene and of an ice scene. The feeling element is slightly greater for the snow scene while it is considerably less than in the drawings of a cold day. Indirect associations are entirely lacking in the drawings of a snow scene; while sports and games in the drawings of an ice scene are about twice as common as those pictured in the snow scene, and about three times as common as those represented in the drawings of a cold day. The following tables of per cents. will show these differences.

Drawings of a Snow Scene. Total Number of Drawings, 320.			
	1	2	3
F.	0	$\frac{9}{10}$	18
G. A.	10	9	44
P. A.	$\frac{8}{10}$	3	42
I. A.	0	0	0
S.	10	7	8
D. V.	1	10	20

Drawings of an Ice Scene. Total Number of Drawings, 297.			
	1	2	3
F.	0	0	4
G. A.	21	4	12
P. A.	$\frac{3}{10}$	0	12
I. A.	6	0	0
S.	29	8	5
D. V.	1	9	6

The following additional characteristics also appear: (a) 51 per cent. of the drawings picture the sun as larger on a hot day than on a cold day. (b) 20 per cent. represent the sun as clouded on a cold day in contrast to the sun on hot, drawn as in a clear sky. (c) $\frac{8}{13}$ of 1 per cent. represent the sun on a cold day as entirely removed from sight.

The tabulation of the compositions on the same schedule as that of the drawings gives the following results. (See p. 77.)

The sun on a hot day is commonly drawn larger, in heavier colors even though the color be black, with more, thicker, longer and heavier rays. In many pictures it is nearer and generally more in evidence. This and focalization of attention and effort upon some one point, *e. g.*, the flies, beer mug, snowballs, flakes, mittens, suspenders, skates, sled, dog, etc., which are either magnified, detailed or both, out of all harmony and proportion, betray at once the center of interest of the drawer and show

A Hot Day. Total Number, 91.				A Cold Day. Total Number, 107.			
	1	2	3		1	2	3
F.	42	61	77	F.	31	42	75
G. A.	3	5	13	G. A.	2	8	24
P. A.	4	2	1	P. A.	0	0	$\frac{9}{10}$
I. A.	4	0	2	I. A.	6	$\frac{9}{10}$	1
S.	1	4	18	S.	6	16	18
L. V.	2	3	6	D. V.	2	8	7

that the child's early efforts with the pencil, as Lukens and Barnes have shown, are to set forth what the mind and not what the eye sees. Hence the inside and outside of a house, three sides of a house, clothing and the body under it, etc., all set forth thought, not sense. No model is wanted. That would only confuse. There is no attempt to select a seasonal scene that is in any degree typical or symbolic, but any concrete experience or observation is focused on and even slightly general implications are few and late. In conceiving winter the child cannot get away from new skates with the latest fastenings, and summer centers in the diving board. No less than we marvel at the suggestibility and profusion of fancy before the blazing fire are we amazed at the mental poverty in ideas and the weakness of conceptual thinking, the almost animal inability to mould many facts into the unity of ideas when the child tries to render an account of what is involved in change of seasons, of temperature, the nature of heat, the place of the sun in our system. Almost up to puberty the contents of the child's mind upon these latter themes seems to consist chiefly of a few scattered images and memories of badly observed individual experiences with very few signs of anything that can be called reason or even real thought, save in the cheap texture of local and temporal association and even these are extremely restricted. A few impressions are scattered over a vast field as if sensations and motor reactions, or the so-called projection system, were not in order of development, and the processes that connect these irrelated centers of interest were yet to be developed. But although this is the sense age when images are most numerous and indelible, it seems anomalous that careful observation is rare, if not almost impossible. This is partly because it is so focused upon single details and partly free

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fancy, which we conceive as the field where psychic heredity has its freest play.

In perhaps no respect does the ignorance of the child seem quite so utterly brutish and hopeless as in its conception of the sun. It is a hole, yellow paper pasted on to the sky, hung up by Jesus like a Chinese lantern, as big as a plate, very near, held up by clouds, turns nightly into the moon, slips around behind the clouds or under ground by night, is father of a family, gets up as we do when it is light, has little or no connection with seasons, but is a mere incident in the sky, sometimes getting almost as hot as fire, put out at night, bright if the child is good, hiding behind clouds if it has been naughty, etc. All this mental darkness only made more visible by here and there a glimmer of classical mythology or of modern science, a state of mind inconceivably below the crudest sun worshshipper, a mizmaze of felted confusion and mental chaos.

The thermometer, too, is misconceived in nearly every imaginable way. It controls weather; a big thermometer suggesting great heat and a small one cold. It may measure time like a clock; the "stuff" in the tube is silver, ink, boiled snow, medicine; and the drawings show that, simple as it is itself, it is far less adequately represented than animals or other life forms. So, too, at an average age of eleven the commonest physical effects of heat in vaporizing and freezing water and causing hot air to vibrate over a stove, are animistically conceived or misconceived in fantastic ways that suggest only the naïve ingenuity of ignorance. Is the child's mind incapable of the simplest reasoning before puberty and is the effort to teach even the rudiments of science abortive till then? Should it be deferred till very late in the child's life as it came late in the history of the race and should all education be focused on humanistic themes and gradually widening to animals and plants, with all the sciences of mechanics and of inanimate nature deferred, and is the rank wild growth of fancy only in order now? Should the school accept this as the order of nature and of growth, or wage a yet more relentless war on superstition, de-animize and de-humanize nature, and push dynamic ideas upon the budding faculties; or, on the other hand, is there danger that if it do so the soul thus deflowered will ripen to dry factual views too early and become barren and senescent before its time, or else tend to revert to either mythic, or poetic or superstitious ideas in belated years, because robbed by untimely methods of its inalienable right to live out its childhood and youth to the uttermost, when they are in order?

Jack Frost seems to be the child's thermal correlate of Loki,

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the heat sprite of Teutonic mythology. He appears to fill a real need of the childish soul and is vastly more plastic and less conventionalized than Santa Claus. He lives in snow-banks, icebergs, caves, with God, in the earth, sky, air, in the sun, is an icicle, a snow-man, snowflake, is invisible because he is so small, of mountainous bulk, six inches high, like an elf, Puck, a fairy, a brownie, a dwarf, an owl, a bug, a pigeon, a painter of the windows with pictures of trees, fields, animals, flowers, ferns and leaves, woods, caves, seas and many of its forms such as fancy sees in the fire, clouds and moon; makes them bad or good according to the children's conduct; etches them in or "breathes on things to make them white and stiff;" nips grass and flowers; pinches noses, fingers, toes, cheeks; carries a bag of complexion powder; howls in the wind on which he rides; drawn by rabbits, or flies on the backs of birds; can go through closed doors and windows; is a "cold devil;" is old; young; icicles are his whiskers; his hair and beard are white or powdered with snow; he opens nuts with an ice sword; wanders by night like a lost soul; sleeps by day; all he touches cracks; he controls the weather; is spiteful or roguish, wicked or kind; and is far more prominent in the life of girls than in that of boys.

Much of this is, of course, due to suggestion, but it is almost impossible not to believe that much is spontaneous and original in the fecund fancy of children. Why he is more commonly conceived than a heat sprite is probably not because there is no "cold sun" or central source of cold and the soul needs something concrete and so makes it, for the child mind does not conceive the sun as the one source and center of heat. Is it because there is no "cold fire" or chemical phenomena from which cold radiates like heat from the hearth, and that the mind therefore tends to create a nidus for the polar opposite of heat by some kind of unconscious process like that invoked by philologists to explain so much *e. g.* their principle of analogy? Perhaps the view most immediately suggested by our returns is that Jack Frost comes as near or nearer than anything else to being an independent modern creation of the child mind. Like every mythological personation it was helped on by many facts and suggestions from many sources and is not a creation *ex nihilo* any more than were those of antiquity or savagery. Yet here, perhaps, we have the best key within our very doors for unlocking the mysteries of racial myth-making. True its products here are very crude, rank, extremely diverse, and undomesticated by literature or art. Here for once children in our over illuminated age and land escaped the pedagogic grafters and put forth a fresh, vigorous, wild shoot that is indigenous and expresses their own soul and does not merely

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reflect what adults have put into it. Better yet each makes his own Jack Frost, and he is still plastic, un-conventionalized, un-uniformitized, un-standardized. Leave him thus adult artists of child life, scribblers of baby creeds that no normal child can really take in without becoming more puerile like you and less truly and fully a child.

If one were to attempt a bold, comprehensive, systematic construction of a theory of the world based on what Bastian calls natural thinking, made up of thoughts nearest to sense, conforming to Avanarius's law of easiest and most economical mentation and including a pedagogy, a cult and a most natural because most naïve religion, he might well attempt to do so by developing and co-ordinating the suggestions now scattered and ineffective of this theme. Heraclitus, the obscure thinker of Ephesus, whose fragments since Lasalle have been composed and rearranged like sibylline leaves in many ways and made to teach many things, represents the highest product of indigenous Greek thought before the Socratic period started on the alien, politically motivated quest of ineluctable foundation on which to rebase the crumbling state. Beywater, Schuster, Bernays, Patrick, and above all Teichmüller, have re-revealed some of the grand features of his system, as geologists suggest the vague outlines of vast mountains now worn away from the hints of many clinal and anti-clinal strata. Both modern science and genetic psychology supply new hints as to what is partly lost and partly might have been, or indeed may yet be when the scientific imagination supplements facts by heroic hypotheses, as Plato supplemented his positive teachings by the great myths which still so appeal to the heart and in later theological ages had more influence than even his doctrines.

Confined in his own bodily life to a range of half a score of degrees of temperature, to transcend either of which is death, limits both of which animal forms greatly exceed, and in his environment to a meager hundred degrees, expanding his thermal knowledge in the experimental work of a Dewar downward, although still far above the absolute zero of 460° below zero F, to which so many lines converge and where all matter and energy die, and in the work of a Mouson upward, although yet much farther below the circa 15,000 degrees above zero conjectured for the sun, man's instincts bear abundant traces of experiences and intuitive intimation of the thermal ranges above and below him, as if we might again say with Heraclitus, "if one wander through all ways he will not reach the limits of the soul in so great depths does it hide," which Trendelenburg interprets to mean that the soul has unlimited power to know all because it is of the same nature as all things. It is itself a fiery particle secreted out of nature as the sun was daily secreted

out of the earth leaving it a little colder and darker, but reabsorbed at night like the soul at death, its activity a "degree of burning," glowing, kindling, or in our term combustion, its culture a second sun arising from helios as it from earth. As all things may follow the "way down" ("the death of fire is to become air, that of air to become water, that of water to become earth," or that of steam to become water and of water to become ice), or the way up in successive eons with reversion at some great epochal era so the light of reason may "burn high or burn low" as sense and matter prevail and we become sarcous, or spirit and wisdom predominate, and we become slowly transmuted, first into great men, then into deity, "or die the fiery death," for there is no rupture of continuity and we are *homoousic* with both extremes. Ours is a thermodynamic world and there is a certain evolution and devolution measured on the thermometric scale.

Ontologically man is well oriented, sometimes it would seem over oriented, both ways along this scale. Inclining instinctively to his thermal optimum, if not actually predisposed by heredity, it needs but a touch of experience to disturb the balance and give him a mania or a phobia either way. Living far nearer the lower than the upper end of the scale, he is far more often pyrophobiac than psychrophobiac ($\psi\upsilon\chi\rho o\nu$ = cold.) Thermalgic sensations are more intense than psychralgic. It is one experience usually and not a series of them that are recalled and that suffices. Thermohedonic and psychrohedonic sensations both invite variations from the norm or average, but stern limits are set just beyond. What would be the effect if the mean had always been preserved in every part, whether man would never then have intuited the wide ranges found in nature, is an epistemological puzzle that is utterly insoluble, inviting though it may be to a metaphysical mind. Without thermal experience life would be robbed of much thought, and metaphor, and science, and morals would lack many re-enforcements, there would be no hells of heat or cold, and life would be monotonous, if not indeed as impossible as are two dimensional beings. Local and general chills and fevers, dermal hot and cold spots, calentures and frigidities, partial hibernation and hastivation, give a language to æsthetics, ethics and religion hardly less than do darkness and light which created the eye for man, the child of the sun.

It is no wonder then that his culture period began with the control of fire and that its worship and its domestication are so important in his culture history. Through it he communicates with the gods in sacrifice. It is a symbol of purification and even spiritualization and etherization. The smoke of altars is incense inhaled by divine nostrils. Its tongue of flame laps

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the burnt offering and was the emblem of the gift of the Holy Spirit. It is wild and may erupt spontaneously and wreak havoc when its god Loki breaks loose in volcanoes, storm, conflagration. Agni is less malignant and under the rule of Hestia it is tamed and pure, and the hearth is the heart of domestic life. It is maintained by perpetual ministration as a sign of immortality or rekindled at long intervals with sacred ceremonies. Among the Parsees it was so holy that its defilement was punished by death. When rekindled every fifty-two years in the Aztec mountains, it meant a renewed covenant with the gods that their devastating anger should not flame forth to man's destruction, shearing the forest hair of the earth. Many a myth of its origin, many a form of fire burial and many a type of baptism by fire show that this brother of the wind and sea has been both more friendly and more cruel to man than any of the elements. It is no wonder he is more profoundly pyrotactic than he knows and dominated unconsciously even in his migrations by reacting to thermal influences.

Since man tamed fire he has had but to do certain slight things at will—once work a chark or fire drill or apply a brand, now strike a match—to become a cause of great effects, viz., to obtain a strong retinal stimulus, banish night and darkness and slay its brood of fears, hear a crackling, roaring, reduce things great or small to ashes and smoke, or cause acute physical pain and perhaps death, and vast pecuniary loss, to witness intense activity and excitement, draw a crowd, get warm, etc., and singly or collectively these motives may develop the incendiary and even the pyromaniac. Fires are set merely to relieve *ennui* and monotony, or with the bonfire motive predominant. To burn something is often as strong an instinct as to kill something against which the inhibitory motives are powerless or, as in the feeble-minded and in children, undeveloped. Maturity, morality and civilization control this impulse as precautions and devices to fire itself, yet sometimes it breaks out in epidemic form. Pyrophobia is inevitable and is only the over ballast of precaution.

The charm of fire-gazing is a great school of the plastic imagination. The excitant is far more mobile than clouds and still more so than frost forms in the window pane. If the very *eigenlicht* of the retina starts the photistic forms that Galton and many others have described, how more than anything else in the physical world the incessant changes of fire are calculated to start suggestion, and the series of vivid pictures it presents to set up manifold trains of spontaneous reverie that hold the soul under a spell that is rudely broken, like sudden awakening if the embers fall or some outer interruption brings us back to

ourselves and to the present. Here are animals' faces, sky and sea scenes, clouds and ships, flowers, pixies, brownies, fairies, dwarfs, monsters, soldiers and battles, demons and angels, eyes, blood, landscapes, illustrations of stories, gods and demons, hell and heaven, dances, church service, chimeras, a hut becomes a palace, air castles, caves and mines of precious metals and diamonds, volcanoes, and everything in action and rapidly changing, flitting fears that creatures may break out or beauties vanish. The child hears the noises of every animal and insect; the fire creatures laugh, cry, sing, roar, moan; are angry, unhappy; leaves rustle and waves beat audibly; they or the very wood and coal scream in agony till we pity them, or are talking to each other; the whips crack; the guns go off in volleys; the hyenas and wolves growl; and children are rapt and absorbed almost to the point of hypnosis and many of these experiences are so vivid that they are recalled long after. Smoke, too, is dirty steam, baby clouds, fairy robes, soapsuds, the breath of the fire or of the animals in it, scorched or roasted air, live ghosts or birds. Ashes are death, cold, and corpse-like, no longer light and alive but dead and dark, wood or coal with the light and heat taken out of them, the clothes the baby brands are put to bed in when the fire is raked, cold fire, softened wood, the stuff we are all made of and what we shall all return to at last, and hence shivery and dreary. So with flushed face and spell-bound mind the world and life are all reflected in the soul, its moral lessons taught in this primal philosophy of the chimney corner, and the soul oriented to the beginning and end of all things. Happy the family and even the schoolroom that can still thus expose the youthful soul to these lessons, and without the open, blazing fireplace, which needs the story hour, no story can be quite complete.

Quite analogous to the old discussion between Locke and the Apriorists as to the origin of the content of the mind, whether it was innate or entered through the senses, is that which now divides biologists, viz., how far the momentum of heredity represented in the fertilized egg is modified by the later environment of the organism. This egg, on the extreme epigenetic hypothesis of *e. g.* Pflüger, has no more controlling relation to the later adult organism of an animal than the individual snowflake, in which it may have started, has on the size and form of an avalanche. The individual simply passes over the same road which his ancestors have travelled and is, therefore, impressed by the same experiences, because he is in the main similarly constituted. If this does not apply to the mind it would seem that after all these generations it would not be necessary for every child now to be burned in order to dread the fire, that the sight of it would not so strongly impel to

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touch, and that there would not be so many pain effects in the background of consciousness. Thermalgic experiences are more intensive, and, although in our returns four times as often remembered, less expansive, recurrent, undifferentiated and general, and less particularized in time and place than thermohedonic effects. Still children usually need but one experience, as newly hatched chicks need but one peck at their own excrements, to teach forever after the lesson of avoidance. In view, too, of the facts that warm blooded animals are perhaps more than twice as near the heat-pain limit as to the cold-pain limit or threshold, that burns stand out far more distinctly in memory than local cold, these records seem favorable to the view of an epigenetic theory of psychic origin.

But the problem is by no means so simply disposed of. Man seems to have passed through the glacial age, and within the historic period his migrations have been more northward from tropical heat to temperate zones than *vice versa*. In the dermal surface the hot spots or points especially sensitized to heat are far more acute and more numerous than the cold spots or points sensitized to cold. Again, the study of morbid fears affords abundant records of highly developed cases where in a hot spell there was intense dread lest the weather should grow hotter and hotter till all would perish in a general conflagration, and cases are on record where on the first experience of snow and winter there was horror lest snow and ice and cold should increase till at last all life would perish from the globe. There are also converse cases. All this suggests that the larger thermal orientation of brain and mind was more disposed to transcend the limits of personal experience than is the immédiate sensuous orientation that is shocked when first "burned" by touching snow and ice, or hot objects. Even the glow of radiant heat that grows intense on approach to give warning does not prevent contact, yet the soul later divines both extremes of heat and cold far transcending all individual if not ancestral experiences unless we take refuge in some desperate hypothesis of reminiscence that can hardly be called even protoplasmal because heat destroys protoplasm of reverberations in the echo chambers of the soul from the fiery nebulæ in which we are told the world itself originated.

Perhaps it is all far simpler, viz., seeing what fire does for all that is burnable, and cold with all that is freezable; the bright child proceeds from these simple sense data, by its own intuitive reverie methods, to muse on what would happen to it if it were exposed to these processes, or if fire or cold were to break out from their bonds and include them and their homes, or become cosmic weather, and shudders. While the neurotic child becomes the victim of its own dreamery and develops phobias,

the normal child thus simply widens its thermal orientation. If in our theories we must exhaust the explanatory resources of personal experience before having recourse to hypotheses of remote phyletic experience, this perhaps ought to suffice. And yet, the Weismannean pure culture of germ plasm concepts that hark back to an immemorial past, that almost seem to forbid us to accept modern instances as an explanation if we can excogitate a more primordial cause, will no doubt for some insist on the last word, and demand that we explain the origin of the psycho-physical apparatus that on so slight sensuous stimulus proceeds to the rapid, wider and ever wider orientations that have given us the whole splendid structure of thermodynamics. It is to thought and its momenta and not to sense, to the brain and not to haptic tests, that we are to look for stored effects of paleopsychic experiences in this as in all fields. Psychro-thermic agencies modified sense and created special organs to perceive these effects, but soul and cerebrum may have stored up long accumulated traces of all our remotest forebears felt, and these it is that scintillate in fancy, but are first adequately exploited and put to work in the pure and applied physics and chemistry of heat and may some day have their origin explained by genetic psychology.

Finally, we have at the very least in such questionnaire returns a kind of psychic anthropometry or examination papers, which show the educational results of all the teaching of the child's entire environment in this subject. We glimpse here the net resultant of all the scholastic and extra scholastic influences and the child's reaction to them. The child is also thus again seen to supplement some imperfect chapters in the history of psychogenesis in the race.

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EARLY EDUCATION IN HAWAII.

By W. B. Elkin, Honolulu.

Formal education in Hawaii began in 1820. In 1819 ere the missionary's voice had been heard in the land, the Hawaiian people, led by Keopuolani, the queen mother, and Kaahumanu, the queen regent, broke the tabus, abolished idolatry, burned the idols, and demolished the heathen temples. It is a matter of much interest that just as, in the Garden of Eden, the tabu was first violated by Eve, in the pursuit of knowledge, so on the Hawaiian Islands a religious and social revolution, the most singular in all history, was effected by women.

In 1820, when the first missionaries arrived, they found a people practically without religion. The missionaries were not at once allowed to land, as it was a custom among the people that no foreigners should live on the islands without the consent of the king and chiefs. These latter refused to give their consent, lest in course of time the missionaries should interfere with affairs of government, or dispossess the natives of their land,[1] fears that were only too well grounded, as later events proved. When the missionaries suggested that some of them should disembark at the port of Honolulu, the king significantly remarked:[2] "White men all prefer Oahu. I think the Americans would like to have that island." After much negotiation, and after waiting for nearly a fortnight, the missionaries received permission to remain on the island for one year, on condition of good behavior. Before the end of the year, however, they were not only invited to remain permanently, but were asked to send to America for more teachers. After landing, they straightway began to teach and to preach.

The history of education in the Hawaiian islands falls, roughly speaking, into four periods, and each period had its own distinctive class of schools. These were as follows: (1) Schools for the chiefs, 1820–25; (2) schools for the common people, 1825–35; (3) boarding schools for boys and girls,

[1]Anderson: *The Hawaiian Islands*, pp. 50, 339; Jarves: *History of the Hawaiian or Sandwich Islands*, p. 221; Dibble: *History of the Sandwich Islands*, pp. 160-162.

[2]Bingham: *A Residence of Twenty-One Years in the Sandwich Islands*, p. 89.

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1836–46; and (4) public schools, from 1846 to the present time. It is the object of this paper to give a brief account of the first three classes of schools.

1. The Schools for the Chiefs. The first contingent of missionaries established four stations, two on Hawaii, one on Oahu, and one on Kauai, and they instituted a school at each station. When reinforcements arrived, in 1823, a few additional stations and schools were established. These schools were attended by the chiefs, some of their retainers, and the children of a few foreign residents. The chiefs would not have allowed the common people to attend, even had there been accommodation. They said that they did not know whether or not education was a good thing. If it was good, they themselves should have it first; and if it were not good, it should not be given to the common people.

The members of the royal family and the nobles were exceedingly anxious to learn. Books and slates were substituted for musical instruments and hula dancing. It became customary for the chiefs and chiefesses to carry their slates about with them, while they took the greatest pleasure in writing, and reading what one another had written. Ellis says of Liholiho, the king;[1] "I have sat beside him at his desk sometimes from nine or ten o'clock in the morning, till nearly sunset, during which time his pen has not been out of his hand more than three-quarters of an hour, while he was at dinner." On occasion he would entertain a party of chiefs for hours together, "with accounts of different parts of the earth, describing the extensive lakes, the mountains, and mines of North and South America; the elephants and inhabitants of India; the houses, manufactures, etc., of England, with no small degree of accuracy."

The missionaries found the people of Hawaii without a written language, but "by diligent application, and the help of the elementary books in the dialects of the Society Islands and New Zealand" they soon reduced the language to writing. The first school books were portions of Scripture, Webster's spelling book, an arithmetic, and *Thoughts of the Chiefs*. But notwithstanding the great disadvantages under which the islanders labored, they made remarkable progress. Assisted by the phonetic system of spelling, some of them learned to read in a few days. Mr. and Mrs. Bingham brought a book to Kaahumanu. "They found her on her mats," says Mrs. Judd,[2] "stretched at full length, with a group of portly dames like herself, engaged in a game of cards, of which they were

[1] *A Tour Through Hawaii*, p. 426.
[2] *Honolulu*, p. 15.

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passionately fond. . . . The teachers waited patiently until the game was finished; they then requested the attention of her ladyship to a new paper, which they had brought her. She turned toward them and asked, 'What is it?' They gave her the little spelling-book in her own language, explaining how it could be made to talk to her, and some of the words it would speak. She listened, was deeply interested, pushed aside her cards, and was never known to resume them. . . . She was but a few days in mastering the art of reading, when she sent orders for books, to supply all her household."

2. The Schools for the Common People. When the chiefs realized, as they soon did, the value of education, they desired that the common people might share in its benefits. In 1825, Kaahumanu issued a proclamation declaring that as soon as schools are established, "all the people must learn." And in 1835 Hoapili, governor of Maui, "required all the children above four years of age, to attend school, and ordered that no man or woman, in his jurisdiction, unable to read, should have license to marry."[1] Soon after Kaahumanu's proclamation, schools were established in all parts of the islands. One instance will suffice to indicate the manner in which they were instituted.[2] Hoapili sent Moo, his pipe lighter, to Hawaii to establish schools in Puna. Moo opened a school in a central part of the district for all the people who could attend. Then as soon as some of the brighter pupils had learned to read, write, and solve simple problems in arithmetic, he sent them to open other schools in the surrounding villages. These teachers did likewise. And soon there was a school in every village throughout the district of Puna. At the same time a similar process was going on in every district throughout the islands. In a few years schools were established everywhere, and almost the entire adult population went to school. In 1832 there were 53,000 pupils, nearly all adults, in a population of 130,000.[3]

In some places the largest house in the village was taken for the school. In other places the people used the church for this purpose, or they put up a new building. These structures were ordinary grass houses. They were destitute of tables, desks, and chairs; except a few mats, they were entirely without furniture. Grass houses do not last long, and soon the roofs of many of these were so bad that in rainy weather the pupils were obliged to hold their slates vertically, in order that the descending rain might not erase the figures. But

[1] Bingham: *A Residence of Twenty-One Years*, etc., p. 474.
[2] Dibble: *History of the Sandwich Islands*, p. 246.
[3] Anderson: *The Hawaiian Islands*, p. 254.

many of the people did not have slates or copy books on which to write. They wrote and ciphered on the floor, on sand, on stones, and on the leaves of the ti plant. In a certain school on Oahu the complete outfit consisted of "a single copy of elementary lessons in spelling and reading."[1]

The teachers of these schools received no pay.[2] They taught either because they liked to teach, or because it was the wish of the chiefs. After a time grass houses were erected for them; they were given each a little plot of ground on which they might raise taro; and they were excused from paying the road tax, or performing the ordinary road work. They taught reading, spelling, writing, and arithmetic. They could not teach any other subjects. Indeed some of them could not teach this much. There were some teachers who, when giving instruction in reading, found it necessary to hold the book in the most favorable position for themselves. This was wrong side up for the pupils. Hence it resulted that certain people, when reading, held the book wrong side up, that having been its position when they first learned.

Although the schoolhouses were poor and ill equipped, and the teachers deficient in knowledge and training, the pupils in large measure made up for all these defects by their surprising zeal and diligence. As the people had their regular work to carry on, they could not well afford to go to school for more than a few hours each day. But such was their devotion to study that in some districts they went to school at six o'clock in the morning.[3] At Waimanu a youth, Wahapuu, "learned to spell and read well, or to have mastered his spelling book, in the short space of five days."[4] A boy on Kauai came to one of the missionaries to procure a book. "Who is your teacher?" asked the missionary. "My desire to learn," he replied; "my ear to hear, my eye to see, my hands to handle; from the sole of my foot to the crown of my head I love learning."[5] But the one study which the early Hawaiians loved above all others was mathematics. So ardent were they in the pursuit of this subject, that a common mode of school discipline was to deprive them of the pleasure of studying it.

Lastly, what was the result? In a few years the people had learned all their teachers could teach them. Then the schools of the second period began to decline. On the death of Kaahumanu, the indomitable queen regent, in 1832, the attendance began to fall off, and in a few years the schools for adults had

[1] Bingham: *A Residence of Twenty-One Years in the S. I* p. 257.
[2] *Ibid.*, pp. 337, 472.
[3] Bingham: *A Residence of Twenty-One Years in the S. I.*, p. 337.
[4] *Ibid.*, p. 297.
[5] *Ibid.*, p. 257.

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practically disappeared. But they had done their work. All the people had learned to read and write, and they had got a glimpse into the magic realm of mathematics, with its fascinating enchantments, and wonder-working power.

3. The Boarding Schools for Boys and Girls. When the Hawaiian people had acquired all the instruction that the native teachers could offer, the missionaries saw the necessity of establishing schools for the better education of teachers. And when the reaction against the Christian religion set in, after the death of Kaahumanu, the missionaries perceived the importance of having a native ministry. For this twofold object, the training of teachers, and the education of a native ministry,—as well as for the sake of higher education generally,—the boarding schools were established. A boarding school had been opened at Honolulu soon after the arrival of the missionaries, but not until the fourth decade did they become common. Boarding schools were established on Hawaii, Maui, Oahu, and Kauai. The most important of these was the Lahainaluna Seminary, which was opened in 1831.

For the first few years of its existence, the Lahainaluna Seminary represented the transition stage between the schools for the common people and the boarding schools. It was a school for adults, and they had to board themselves. Dibble,[1] the missionary historian, relates that at the General Meeting of the mission in June, 1831, "it was unanimously resolved to establish a Seminary for raising up teachers and other helpers in the missionary work." Some time after the General Meeting the site, then in a rude and barren state, was selected. There was "no schoolhouse, no apparatus and no school books properly so called; and what was more, there was no arrangement or appropriation by General Meeting to answer these demands." A shed made of poles and grass was put up to serve as a schoolhouse. "A house for the teacher and his family was constructed in the usual native way with poles and sticks and thatched with grass. With merely these preparations, the school went into operation as early as the 5th of September."

The students came from the different islands. They numbered 25 at the beginning of the year, and increased to 67 before the close. They were all adults, and many of them were married.[2] They had little or no means. They had to erect booths or grass huts to live in, cultivate taro and vegetable patches for food, and carry on their studies at the same time. Nor was this all. In a few weeks, under the direction of the teacher, they began the construction of a stone building, 50

[1] *History of the Sandwich Islands*, p. 305.
[2] Dibble: *History of the Sandwich Islands*, p. 307.

feet by 26 inside. Building stone houses was not an easy matter in those days.[1] The students carried the stones on their backs, or in their arms. The customary method of obtaining mortar was for a number of men to go out in canoes some distance from the shore and dive for coral rock. If the piece of coral was too heavy for the diver to bring to the surface, he rolled it along the bottom of the sea to shallow water near the shore, rising occasionally to take breath; or else he came to the surface, took a rope and descending tied it round the piece of rock; then coming to the surface he hauled up the coral. When the students had obtained a sufficient quantity of coral, they went to the mountains and collected fire-wood to burn it. Their wives rendered assistance, carrying in calabashes sand and water for the mortar. When the walls of the house were built the students went again to the mountains for lumber. Many of the rafters they hauled with ropes, or carried on their shoulders from east Maui, a distance of 25 or 30 miles. The schoolhouse was finished and furnished before the end of the year. Meanwhile, these Hawaiians carried on their studies, and, with the assistance of their wives, supported themselves and their families. "Rarely has a school appeared more truly interesting," says Bingham,[2] "than that high school, at Lahainaluna. [The students were] withdrawn a mile and a half from the town which they overlooked, laboring at their new building, and pursuing their studies, often hungry, with almost no shelter from the sun and rain, no furniture, and very little school apparatus; when they held their slates in a perpendicular position to prevent the descending showers from washing out their questions, and refused to be dismissed till their lessons were completed." These were the men who became, in due time, the teachers, preachers, lawyers, and legislators of the Hawaiian kingdom.

As time passed the missionaries became convinced that an educated class of natives was necessary to the maintenance of a progressive Christian civilization on the islands, and that the best method of obtaining this result was to establish boarding schools for boys and girls. The boys should, in course of time, not only take the place of the foreign clergy and teachers, but become an enlightened professional class; and the girls should become their suitable help-meets. Accordingly, in 1836, when the A. B. C. F. M. granted some financial and personal aid, a change was made in the organization of the Lahainaluna Seminary. The institution gradually ceased to be a self-supporting

[1] Bingham: *A Residence of Twenty-One Years in the S. I.*, pp. 425, 427.

[2] *Op. cit.*, p. 473.

school for adults, and became a boarding school for boys. Soon afterwards, a number of boarding schools were established, notably the Preparatory School at Hilo, the Female Seminary at Wailuku, and the Family School for young chiefs at Honolulu,—the last named being maintained at public expense. Some of these schools continue to the present time.

The following is the programme for the Hilo Preparatory School, which may be taken as representative of the boarding schools for boys:[1] "The scholars rise at 5 o'clock, assemble for morning prayers at 5:15, breakfast at 6:15, labor from 7 to 8:30, attend school from 9 to 11:30, bathe, dine at 12:30, attend school from 1:30 to 4, labor from 4:30 to 5:45, sup at 6:15, attend evening prayers at 7, and extinguish their lights at 9." The exercises for the day at the Wailuku Female Seminary were as follows:[2] "At daylight, prayers, then one hour of light labor in the garden, breakfast, miscellaneous work; from 9 till 11 o'clock, school . . in spinning, sewing, knitting, weaving, etc., then bathing and dinner; from 2 till 4, in the afternoon, school . . in reading, writing, arithmetic, geography and other studies; from 4 to 5 labor in the open field with hoes and other implements for vigorous exercise, then supper and evening prayers. Wednesday afternoon is devoted to excursions and sea bathing." Such was the daily schedule for these simple children of nature, whose forefathers, for countless generations, had been accustomed to spend a large portion of their time basking in the sunshine, reclining in the shade of their palms and fruit trees, or disporting themselves in the cooling waves of the sea.

The discipline in these schools seems to have been severe, in some it was inhuman, and not a few of the reports make now painful reading. The nightmare of the detested tabu system still lingered in the restrictions of Jewish law. A pious visitor who saw the boys eat dinner at the Lahainaluna Seminary related:[3] "They partook of their meal in perfect silence—rather a difficult requirement for a Hawaiian, one would suppose, but only the more necessary to be observed from their extremely loquacious habits." In the second Quarterly Report of the Boarding School at Wailuku we read:[4] "The instructors feel that they have great occasion for gratitude to God for his special favors during the term. . . . Near the close of the term, the Holy Spirit was graciously sent down upon the seminary. Nearly all the little girls seemed to be more or less convicted of sin, of their ruined condition, and of their need of

[1] Dibble: *History of the Sandwich Islands*, p. 325.
[2] *Ibid.*, p. 322.
[3] *Hawaiian Spectator*, I, p. 428.
[4] *Ibid.*, I, No. 2, p. 103.

mercy." A few weeks later nearly all the little girls were seriously ill. Five died, 12% of the total number in attendance during the year, and several others were obliged to leave school. The next year, according to Dibble, there was "much seriousness," and "considerable sickness." During the third year, "sickness made more alarming ravages than in any previous year. Five died. Twelve left on account of sickness, of whom a part died but the greater number recovered."[1] Dr. Judd, the missionary physician, was then called in. He recommended less confinement, and more exercise in the open air. Dibble characteristically remarked:[2] "It seemed impossible to restrain [the pupils] from rude and romping behavior and to confine them to those exercises deemed more proper for females, without serious injury to health. To require at once habits of civilization according to our notions of it, was evidently attended with great risk." Nevertheless, in 1843, the good principal of this school, evidently with pious satisfaction, wrote of these poor children:[3] "So far as we know, all met to pray in little circles, every morning or evening, or both. They often arose long before the light of day, to engage in this blessed work. The taste for play seemed to vanish; and all appeared, in a greater or less degree, to feel that the salvation of their souls was the great thing to be attended to." That in some schools the health of the pupils seems to have been good is a pleasing testimony to the remarkable natural strength and vigor of the Hawaiian people.

In 1846 the Hawaiian government assumed the entire support of the common schools. And as these were modelled largely after the public schools of America an account of them need not be given here.

The result of the efforts in early education, in Hawaii, as above described, may be fairly understood from the following quotations. Rev. W. P. Alexander, in a sermon preached in the United States in 1859, said:[4] "By a careful calculation from official documents I have come to the conclusion that as great a proportion of these islanders can read and write their own language as of any State in this Union; and the government spends a greater proportion of its revenue to educate the people than any other government in the world." And in 1860, when Mr. R. H. Dana, a lawyer from Boston, travelled in the islands he wrote:[5] "The proportion of the inhabitants who can read and write is greater than in New England."

[1] Dibble: *History of the S. I.*, p. 321.
[2] *Ibid.*
[3] Bingham: *Op. cit.*, p. 583.
[4] Alexander: *Mission Life in Hawaii*, p. 175.
[5] Anderson: *The Hawaiian Islands*, p. 99.

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One now sees the islanders "going to school and public worship with more regularity than the people do at home; and the more elevated of them taking part in conducting the affairs of the constitutional monarchy under which they live."

Unfortunately for the welfare of the Hawaiians, as well as for the honor of Christian missions, the further results to be naturally expected from this bright and encouraging outlook did not materialize. In the course of a few years nearly all the early missionaries had died or retired; and nearly all their children, instead of carrying on the ministry of the word, had taken to serving tables. Since then the missionaries' children, with a few notable exceptions, have been busily engaged in exploiting the natural resources of the islands, rather than in teaching the people. It should be said, of course, that for a long time the descendants of the missionaries, in many ways, favored and helped the natives, a policy which seems to have been also for their own best interests. But it must be conceded that the interest which the missionary party now take in the natives is mainly indirect, and that generally speaking the rising generation is like the new Pharoah who knew not Joseph.

It will be readily acknowledged that the changed attitude of the missionary party toward the natives has been, to some extent, forced upon them through stress of circumstances, in their competition with the non-missionary foreign element. It is these latter who must ever be held chiefly accountable for the ill treatment which the Hawaiians have received. And the indisputable fact remains that the foreigners, finding that the Hawaiian was a landselling and exceedingly accommodating individual, but not a sugar raising animal, resorted to China, Japan, and every other country under the sun, where there was a probability of getting cheap labor. Then the simple minded native, having weakly sold his birthright for a small mess of pottage, was left helpless on the roadside, while the grand chariot of Christian civilization sped triumphantly onward. The Hawaiian, in his native land, has been ruthlessly sacrificed to the financial interests of the all-devouring Anglo-Saxon.

But why, it may be asked, did the Hawaiians not use the light when they had received it? Why did they not, when they went to school and public worship with greater regularity than did the Americans, take an active part in the development of modern civilization? Many causes might be assigned, but the statement of two must suffice. One was the evil influence of depraved foreigners, a cause which has been universally recognized; the other was the inadequacy of the missionary education, a fact which has been universally ignored.

The diabolical criminality and shameless licentiousness of the foreign element is without parallel, and is almost beyond conception. The history of the islands teems with instances of a most revolting nature. "The extremity to which some of the foreigners pushed their point," says Stewart, in his *Private Journal*,[1] "and of the means resorted to, for its accomplishment; you may judge, from the fact, that the pupils of the first female school collected, at this place [Honolulu], by Mrs. Bingham—after being clothed, and brought, with much care and attention, to habits of neatness and propriety in their persons, and made themselves to be deeply interested in various useful instruction—were borne off, openly and forcibly by them, to become their mistresses, while the instructress herself, could answer the appeals made to her for protection, only *by her tears.*"

It is now well known that a race cannot be civilized in a generation. The Hawaiians were never really educated. They indeed made a noble and supreme effort, and their progress was surprising. But the education introduced to the islands by the New England missionaries, although it might be "a system baptized by the Holy Ghost,"—as Dibble characterized it,—had one very serious defect, when imposed upon a primitive people. It was essentially based on the conception of the miraculous, rather than on the conception of natural law. It is a most significant fact, in this connection, that during all the time that the Hawaiian people were dying out, when the population decreased from 130,000 in 1832, to about 38,000 in 1900, and when the Hawaiians were distinguishing themselves in law and politics, in education and religion, only one studied medicine and became a physician. The kahunas cured and killed people by prayer and fasting, and their "brother priests," the missionaries, followed all too closely their archaic example. Their works did not keep reasonable pace with their faith. If early education in Hawaii, instead of being based upon the Hebrew bible, had been based on natural law, on industry, and on commerce, the Hawaiian people would now be far more numerous and intelligent than they are, and would possess much more property, wealth, and political power than they do.

[1] P. 159.

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NOTE ON CLOUD FANCIES.[1]

Supplemental by G. S. H.

It seems not too strong a statement to say that there is nothing whatever that the fancy of children does not see in the clouds. Not only is everything on earth mirrored and transfigured there, everything read, reflected and pictured, but the factual and literary world is far transcended and many things with no earthly counterpart are revealed to the plastic imagination of which they are perhaps the chief school, inspirer, and in no small degree the creator. If instead of living at the bottom of a deep sea of air with such changing phenomena taking place above us, so in contrast with the fixity of earth, we can conceive human life possible on, *e. g.*, the airless moon, the soul would have been a very different and far more prosaic thing.

Not only is everything seen in cloud-land, but every known emotion and every sentiment is strongly played on by its scenery. Its vast repertory of effects has done much to make the life of feeling deep, rich, and variegated. The "moods of heaven's deep heart" are reflected in our own. They have inspired so much in myth and poetry that without cloud-psychoses both would be impoverished. We should have had no vision of Ezekiel or John; should have lost most of the best of the old Aryan myths and the Vedas and Bible prophecies would be impoverished; would have had no Niobe, Nephele, swan maidens, golden fleece, Valkyries, harpies, a very different Odin, Walhall, Jove, Hermes, Polyphemus, Phryxos, Helle, Phaiakion ships, great roc, houris in the old Hindu heaven, no sphinx, Apollo, etc.

The child's imagery about clouds is not only rankly profuse, but sometimes of uncontrolled or almost delusional intensity. Many think they see real angels, faces of God, friends, landscapes, castles, Queen Mab's shining tent, volcanoes, chariots and horses, monsters, battles, caravans, swords, banners, hands, fish, Santa Claus, Indians, Dido, judgment day scenes, cities, Christ on his sparkling throne, geographical scenes, conflagrations, scenes in heaven, animals, flowers and trees, and things too grand, beautiful and fearful for earth. Distances are greatly

[1] See G. Stanley Hall and J. E. W. Wallin: How children and youth think and feel about clouds. *Ped. Sem.*, Dec., 1902.

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underestimated, so that everything is near and the effects are immediate and almost reflex. They often want to go to, touch, roll, plunge into their downy substance, lie, sail off with them, follow the persons, or take part in the scenes they see in them.

With adolescence all this undergoes a characteristic change for those sensitized to clouds. Instead of wanting to soar away to, float with, embrace or be embraced by them, their lovely shapes inspire youth with a vague longing for greater beauty than earth affords. Transient as they are they stir suggestion in his soul of something nobler and purer than has been and arouse moral and æsthetic aspiration. Not physical contact or levitation, but inner exaltation, a hunger of soul for a larger and more glorious life, is now the normal reaction. Ideal constructions are suggested beyond the immediate presentation of sense. The thrills are of ethical expansion. The mind is led to regions of ineffable tranquility and of light unsullied till earth seems dull, gloomy, solitary. There is no more illusion, far less fear, but far more often lingering but perhaps sunset depression. Youth does not picture weather people or perhaps not even angels or God just behind the clouds, veiled by them from the sight of men as they do their work, and the heaven they suggest is no longer literal or just behind or in the clouds, for all the space ideas are vastated. Behindness is metamorphosed into symbolism. Even the colors that inundate and intoxicate the brain in such vast variety typify life. The color sense, nowhere so satisfied as in some cloudscapes, besides its sensuous beauty, has some mystic meaning, at least suggests some problem though it cannot be solved or even formulated. All its illusion is gone, but the fancy persists, and the feeling far more. The celestial picture gallery speaks to the heart more than to sense. Through the teens and early twenties the fantasies will fade and perhaps almost vanish, so that the effect is immediately upon the mood with diminishing constructive imagery. The transiency of these "ghostly silhouettes" suggests that man and all things, even the earth itself, will melt away and vanish. Words themselves cannot so mirror every emotion or mood from joy or brightness to depression and melancholy. They symbolize everything in life, and perhaps nothing can so elevate and expand the feelings. If the natural cloud tropism of this age is indulged, Ruskin, who more forcibly than any one else, has insisted that otherwise the imagination is dwarfed and sentiments crippled by disuse, thinks that genius often finds here the inspiration for its masterpieces. Thus in an added sense, "To the solid ground of nature's trusts the mind that builds for aye."

Nephelopsychoses, if such a word may be coined, are distinctly more prominent and numerous among girls than boys,

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and as the female organism is more conservative this of itself suggests rapport with phylogeny. They take a deeper hold on the soul at adolescence, and the feelings, which are so deeply stirred by them, are older than the intellect and are the form in which the new momentum of heredity are expressed, and this again suggests race experience. Perhaps we can now in view of new data from child study compare, although with much vagueness and uncertainty, the two. In the early history of the race clouds were observed more intensively and protensively because they were thought to reveal the feelings of the divine powers toward men and to forecast future events. Cloud gazing was very likely a more serious and anxious business. Aboriginal people lived in the country, and its monotony and the absence of social excitement inclined to attentive scrutiny of the ever metamorphosing landscape above, while pastoral and agricultural life, because more dependent on the weather, increased interest in them as weather bearers. With the modern child they form a far smaller part of the environment; he is so well sheltered that weather is less important; because young his constructive faculties are less developed and so his concepts are less elaborated and the faculties involved are slowly lapsing to vestigial rudiments. Because living in an age when traditions on the subject are less evolved and dominant, his mind is freer, its creations more varied and fleeting, life about him is more interesting and distracting from the heavens, and he actually grows miopic in mind because he renounces looking upward which is etymologically the most characteristic act of man, *anthropos*. Powers that once entified and personated objects are atrophied, or if youth becomes a cloud gazer it is for pastime and not for business. Youth now knows and feels that clouds are always mere phenomena and appearance with nothing noumenal, and however ignorant he may be, all his nephelopsychoses are under the dominance of knowledge—enough of condensation and vaporization to kill this factor of mystery forever and his reaction is purely emotional.

Children wonder, fear, and admire impressive cloud-scenes. Youth feel nameless longings, awe, reverence, or is homesick for a great love and melted to tenderness, and rises from the thought of something behind the clouds to that of a power behind nature. The pleasure and pain and all the other sentiments suggested are often disproportionately great compared with the strength of the stimulus and that suggests inherited psychic vestiges from a long past. The child's images are in the foreground of the soul and are of some hundred different species and varieties in our less than four hundred persons with but few stable and uniform reactions. With youth the cloud language is addressed to the heart and its responses are no less

varied and voluminous. The child observes in its hasty and cursory way and reacts by pictures that a painter might attempt to portray. Youth, too, observes but more absent mindedly and in reverie, and its reactions only the poet's pen, not the brush, could seek to represent. One would conserve the visual glory by depicting it; the other would perpetuate the sentiment inspired by indicting. In the child the intensity of the emotions of fear and painful reaction are most disproportionate to the cause, and in youth suggest inherited vestiges from an age when man was at the mercy of uncontrolled forces in nature. In the youth joy, with perhaps often the rapture of woe, is incited by effects more felt than seen, suggesting that a prepotency of the subjective over the objective that dates to a later age when love was well on with its great work of casting out fear and was beginning to give nature a new language but had not yet found its own by focusing its wide ranging secondary psychic qualities on a chosen mate.

One of the most effective of all schools for the imagination at adolescence is clouds. Young children love to trace islands and seas; fancy mirrorings of distant terrestrial objects and scenes; think them souls, swords, ships, cattle, armies, God, angels, dead people, cities, heaven, etc., but in pubescence their influence is deeper and involves the heart. Special signs, words, Bible scenes are no more and perhaps less often recognized, and the child's wish that pretty clouds come down for them to stroke or lie in is less frequent; but reveries in which the soul is transported and lost to the present are more frequent. Very often special cloud experiences are indelible, and religious imagery is sometimes given a great reality, and faith a very material support. A girl of 17, one evening at the seashore, saw a cloud as if all the rivers in the world were hung up to dry like ribbons; could not bear to have it fade; and wanted to paint it. Another, when 13, saw a cloud at sunset beautifully tinted and the shape of an angel's wing, which brought to mind a young friend who had just died. A girl of 19, waiting for a train, saw a cloud like a lava river with a distant volcano, which changed to a sea of ice and then became a silver path leading from earth to heaven, which seemed like the straight and narrow way, which led to life eternal, and it was felt might be a special warning to her. Some can find no words to describe the beauty, ecstasy, or peace of cloud beauty. Others see patterns and tapestry of supernal tint and texture. Stories are reflected or illustrated in cloudscapes. Boys sometimes develop a passion for sitting down and imagining things in the sky. Sometimes youth find themselves unconsciously so absorbed in watching the transformations that they involuntarily sigh or cry out with pain, when the pictures change or

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fade. Some form settled habits of watching them not for fancy, but merely for the joy of color and form. Others are drawn toward celestial scenery or sea warnings of shipwrecks or sea angels and saints. A girl of 19 saw Jesus slowly ascending glad but glorious, and wished to rise with him. One saw the resurrection enacted and watched with awe to see it again. Another came to believe in heaven from seeing Christ with saints in white. Some trace all they have read of or think earnestly about, or imagine things they cannot see because wrapped in them. Day dreams in communion with clouds sometimes console in affliction; encourage high purpose and resolve; threaten or intimidate wrong; answer questions; reveal secrets; tell fortunes; teach aspiration and idealism; and even belief in the reality of souls and immortality.

Is there not abundant reason in all this to infer that in the soul of youth to-day there are still traces of the mythopoetic faculty, which in earlier and untaught races where imagination was uninhibited by knowledge and where pagan faiths were at their best, evolved the old Aryan deities which Max Müller and Cox have described, and which in their more evolved and humanly personified form constituted so many of the nature gods of ancient Greece and Rome? Now these faculties are earlier discredited and relegated to younger and perhaps ever younger years, so that they are less effective and less dominant; but the rudimentary organs of the soul, which produced them, are still there, and the question what the imagination in adults to-day would be, if man lived under a cloudless sky, is as suggestive and interesting as it is unanswerable. Clouds, too, give the mind a sense of the reality of the tenuous; contribute to turn man's thoughts and perhaps his prayers upward; and to give a sense of reality to heavenward things which a moon dweller could not know. Nothing makes the imagination so plastic; impels it through so polymorphic realms by suggestion. Cloud animals predominate for children, because animal shapes are more varied; but for youth, they more often suggest the many aspects of a higher life. We also here find the same contrast between sentiment and science. The feelings are not edified by learning that clouds are aqueous vapor or by memorizing their names or studying their laws in meteorology. Here, too, there is a light that goes out in the heart when the light of science is kindled in the mind, and we have many records of children who resist the first new adult knowledge with a vehemence that suggests the long warfare between science and religion, as rain comes to be understood as precipitation and not leakage from a sea above the firmament or the opening of heavenly windows.

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THE EVOLUTION OF IDEALS.

By WILL GRANT CHAMBERS.

In view of the several excellent papers on this topic already in existence, it may seem to some that an apology is due from one who, at this late day, offers a new study on Children's Ideals for publication. The figure of threshing over old straw will no doubt be suggested, and perhaps with some justice. Indeed, there are those among the most careful students of children who have begun to urge the view that we have now done enough of the kind of work represented by this paper, that any further repetition of studies which have already given definite and unquestionable results is a mere waste of time and energy, that it is now time to carry on the work of child study on a higher plane, using the results already obtained for purposes of broader generalization and applying the principles thus reached to actual school conditions. It is time to end these narrow, scattering, local studies, they say, and to begin to take a broader view; we must not allow all our enthusiasm to be expended on this initial phase of the work. And above all, they conclude, it is now time for action. Child study has been carried on for a decade or two largely in the sphere of theory. The public is demanding some concrete evidence of its value, some more general practical application in the work of the schools. We should now turn our attention in this direction.

But are not the persons who argue thus involving themselves in the same contradiction that Mr. Herbert Spencer creates when in his famous chapter on "What Knowledge is of most Worth," after insisting that all education be founded on inductive science—that the collection of facts must precede the establishment of principles—he declares that the only history worth teaching is the philosophy of history. Spencer contradicts his fundamental principle of inductive teaching, by offering the generalizations of history before pupils can possibly have a sufficient foundation of concrete facts to understand those generalizations. And similarly it seems to the writer a contradiction to speak, at this stage of development, of abandoning these concrete studies to devote ourselves to broad, psychological generalizations, which shall be sound, and to the reduction of those generalizations to rules of procedure for practical teachers.

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Professor Earl Barnes has compared the relation of child study to the science of psychology to that of horticulture to the science of botany.[1] There is no reason why the horticulturist should not be a careful experimenter or accurate observer of facts, or why he should not arrive at sound conclusions; "but his work is much more particular and circumscribed than that of the botanist. The difficulty comes when the horticulturist tries to reach general conclusions from a limited study, broken by the demands of a practical life." In the early days, no botanist would have been justified in writing a description of the plants of North America, based only on studies of the flora of certain parts of California, Minnesota, and New England. And even after the continent has been thoroughly explored and its entire flora scientifically catalogued and described, there is still a place for minute and painstaking studies of certain characteristics of the plants of a given locality. Is it not equally true that it would be unscientific to proclaim certain unqualified generalizations about children's ideals based only on studies of small groups of children in California, Minnesota, New Jersey, and England? And even when several such studies have established certain reasonably safe principles, does it follow that other investigations of the same kind can add nothing of value? By no means. No science is ever complete. And the most valuable increments often come from the persistent study of a well-worked field. "The science of Botany was not built up by studying the flora of one vicinity once, but the same study had to be repeated in all parts of the world. Only when such studies had been repeated many times, did it become possible to rise to the larger generalizations concerning the geographical distribution of plants and the effect of climate, soil and moisture upon their growth. In child study, each good experiment, carefully repeated, will help to broaden and perfect the original conclusions, and it will help build up data for sound generalizations as to the effects of race, institutions, beliefs, and educational practices." (No. 6, p. 40.)[2]

Of this same study it has been said "it should be multiplied a thousand times, in country and city, with rich and poor, with different nationalities, with different courses of study, with different sorts of teachers." (No. 6, p. 320.)

In addition to this general justification, it may be said that the present study represents a locality geographically new, and a society exceptionally heterogeneous; that it includes a greater

[1] In his University Extension Lectures. Also in his Introduction to the "Bibliography of Child Study in the Pedagogical Library of the Board of Education of Philadelphia."

[2] Numbers thus used refer to the bibliography which concludes the paper.

number of children and covers a greater range in ages than any previous study; that it gives additional emphasis to conclusions hinted at before and presents a few new suggestions which alone should justify the study; that it gives comparative tables wherever the basis of classification is the same and the figures are accessible; and that a bibliography of the subject is added. An attempt has been made to bring together here the main results of all the studies of children's ideals conducted up to date.

New Castle, Pennsylvania, was chosen as the most desirable place for conducting this investigation for several reasons. (1) It represents a geographical area hitherto not studied. (2) It is an exceptionally fine type of the busy industrial city, being the center of extensive iron and steel manufactories of various kinds, containing the largest tin mill in the world as well as a smaller one and various allied industries, besides nail mills, glass factories, paper mills, paint houses, brickyards and stone quarries, and fostering a variety of manufactories of finer grades of merchandise and flourishing businesses of all sorts. (3) The great variety of commercial and industrial enterprises has drawn to the city a very heterogeneous population. Among the forty thousand inhabitants are large proportions of English, Welsh, Irish, Scotch, Germans, Italians, Negroes, Swedes, as well as smaller bodies of almost every people on earth. All grades of society, all occupations, all degrees of wealth and intelligence, all kinds of religion are represented. Probably no city of equal size in the country could give results that are so cosmopolitan. We have here Americanism in all stages of the process of evolution from the most diverse beginnings. (4) An accommodating school administration offered to conduct the necessary exercises and provide papers for the study.

Lists of careful directions were prepared concerning the giving of the exercise as a part of the regular composition work of the school and urging the usual cautions against explanations, suggestions, or illustrations on the part of the teacher, and against previous preparations, asking questions, exchanging opinions, and unusual attention to spelling and writing on the part of the pupils. To these lists were added the following directions to the pupils:

1. Write your name and age at the top of your paper.
2. Write an answer to this question: What person of whom you have heard or read would you most like to be? Why?

All the pupils of the city schools below the high school were asked to write the above composition at the same hour of the same day, so that there was absolutely no opportunity for preliminary discussion of the topic. The time selected was near

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the close of the school year, so that most of the children in the lowest grade were able to express themselves in writing to some extent and were therefore included in the investigation. The papers were collected by the teachers and through the superintendent conveyed to the writer. Some 2,500 returns were received, about 150 of which (chiefly those of the youngest children and new immigrants) were either blank, illegible or otherwise unusable, and were thrown out in the beginning. The remainder, representing the answers of 1,146 boys and 1,187 girls, were gone through a number of times, carefully studied, and grouped and classified in a number of ways and with the minuteness of detail the tedium of which can be appreciated by those alone who are familiar with such work. A few of the results obtained from this study are here presented.

I.

The first classification of data undertaken was on the basis of ideals chosen. All blank and illegible papers having been rejected each remaining one contributed something to this classification. Only nine girls and thirteen boys out of the whole number, or less than 1%, declared that they would rather be themselves than any one else, and they were comprehended, almost entirely, between the ages of eleven and fifteen. The reasons given for preferring one's self to any other are varied. A few of the girls regard the question as a sacrilegious impeachment of God's decrees. (No. 3 b, p. 7.)

Girl, 15. I would rather be myself. God said, "Thou shalt not covet."

Girl, 13. Myself, because I think I ought not want to be anybody else.

Some of both sexes regard the impossibility of change as a justification of having no ideal:

Girl, 14. Myself, because I could not be no one else.

Boy, 12. Myself, because I cant be anybody else now.

A few give no reason, but all the rest prefer to be as they are because they are satisfied with their own lot. The boys predominate in this class:

Boy, 9. Myself, because I'm a boy.

Girl, 13. Myself, because I am good enough.

Girl, 11. Myself, because I am happy.

Boy, 12. Myself, because thing are about as I want them at home.

Boy, 13. Myself, because I would n't want to be any older or any one else.

Boy, 16. I envy no man of whom I have heard or read. I would rather be like I am.

One cannot help asking the question whether or not these

last quoted children are better off than though filled with unrest and discontent of their lot. Why should boys be better satisfied with their condition than girls? (No. 3 b, pp. 7-11.)

In the light of the pessimistic criticism directed against the morals of our civilization and the teaching of morality in our schools, one cannot help being surprised at the remarkably small number of unworthy ideals chosen by these children. Not a single choice of the girls could be regarded as base, although a few are not as ideal as we might desire them to be. Of the boys, six have named characters whose influence is wholly debasing, though in two instances their language is such as to indicate that they were trying to horrify the teacher, in another the reason given shows that they did not know the character chosen, and in all it was unquestionably that element in the person named which appealed strongly to a natural impulse in the boy that attracted him and not the bad in the man. The following are the choices:

Boy, 13. Mr. H———To have all the whiskey I want.
Boy, 9. Biddle boys. Because they are desperadoes.
Boy, 14. Jim Jeffries. Because there is lots of out-door work.
Boy, 13. Jim Jeffries. Because of his skill at boxing.
Boy, 14. Jim Jeffries or U. S. Grant, so you could fight.
Boy, 15. Jessie James. Writes great novels.

Some of the reasons given for choosing such characters as Buffalo Bill, or even Gen. Grant or Theodore Roosevelt, might be construed as degrading to character, but the writer regards them rather in the light of longings for the exercise of innate tendencies and natural instincts for the healthful exercise and development of which our modern life makes no adequate provision. Evil, as such, makes slight appeal to any boy. The doctrine of original sin receives but scanty recognition from any one who really understands child life, even in the lowest grade of society.

Three of the most evident tendencies brought out in the classification of ideals have been emphasized in all earlier investigations; viz., the constantly diminishing proportion of local characters and acquaintances chosen and a corresponding increase in the number of historical and other non-local celebrities. This study brought out three distinct "strands of tendency" which are shown in Fig. 1.

The class "local ideals" includes all those individuals who are personally known to the child,—parents, relatives, playmates, teachers, ministers, doctors, and others who have only a local reputation. All other choices are classed as "historical" or "contemporary" according as they were dead or living within the memory of the person choosing.

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The diminishing tendency to choose an acquaintance ideal is but one example of a characteristic of child life that has been illustrated by almost every quantitative study. It depends on

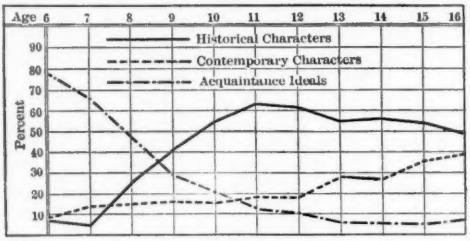

FIG. 1.

the simplicity of the young mind and on limited experience. It is the same principle which has recognition in the well known pedagogic maxims, "From known to unknown," "From concrete to abstract," and which underlies the Pestalozzian object lessons and number methods. Professor James,[1] President Hall,[2] and other psychologists have shown that the self is a very different conception to child and adult. In a true sense, the self is co-extensive with the field of interest. For the little child the world is centered in his own immediate comfort, in the satisfaction of his own desires. Only slowly does his world broaden out to include, first, nurse and parents, then relatives and frequent visitors, neighbors, playmates, schoolmates, teachers and more remote individuals. (No. 1, p. 89.) The development of altruism out of selfishness is simply an expansion of the self to include, as parts of itself, persons more and more remote.[3] The growth of sympathy out of apparent cruelty illustrates the same law.[4] If we conceive of mind as "experience functioning" it is easy to understand why, in choosing his ideals, a child should be limited to his circle of acquaintances. And it is equally easy to see why this tendency should vanish with broadening experience. Over 29% of the girls and about 36% of the boys in this study at the ages of 6 and 7 regard their playmates as the most enviable people in the world. Fathers and mothers and other near relatives are so regarded by about 4% of each.

[1] Principles of Psychology, Vol. I, Chapter 10.

[2] See "Some aspects of the Early Sense of Self," G. Stanley Hall, *American Journal of Psychology*, Vol. IX, No. 3, April, 1898, pp. 351-395.

[3] Earl Barnes: Lecture on "The Growth of Personality," Chatauqua Assembly Herald, July 15, 1902.

[4] Earl Barnes: Lecture on "The Growth of Humane Feeling," Chatauqua Assembly Herald, July 18, 1902.

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Professor Barnes found the London children more backward than the Americans of Miss Darrah's study in the expansion of their ideals. (No. 1, p. 89.) Our results place the children of New Castle midway between the two. They begin with a larger proportion of acquaintance ideals, but exhibit a much more rapid expansion than either of the others. The following comparative tables may be of interest.

ACQUAINTANCE IDEALS.

Age	6	7	8	9	10	11	12	13	14	15	16
Minn. & Cal.		47%	36%	25%	22%	15%	11%	10%	7%	7%	8%
London			46	45	31	19	17	14			
New Jersey		65	53	46	35	31	27	17			
New Castle	78	66½	46	29	20	13	10	7¼	5½	4	5

Which of these courses of development represents the most desirable or natural rate of growth it is impossible at this time to determine. We are greatly in need, as has been said, of a system of norms, determined by comparative studies of healthy, normal children under the most favorable conditions, which may be accepted as standards for comparison. This is one of the great needs that child study has yet to supply. If one were given to hasty generalization he might conclude from the above table that those children which reach school age with the largest proportion of acquaintance ideals are in the most hopeful condition, since they develop most rapidly and retain the smallest proportion at high school age. But a glance shows one that those standing second in the choice of acquaintances expand slowest of all, while those entering school with the most diversified ideals are practically equal in the rate of growth to those first mentioned. Nothing but a great number of similar studies will enable us to arrive at a safe decision as to the time when the pupal citizen should leave the cocoon of home environment and expand his wings for higher and broader visions.

It is of interest also to note that the girls in our study chose from 2% to 10% more acquaintance ideals, age for age, than did the boys. But we have come to associate that characteristic with primitive mind. Shall we conclude, then, that girls are less developed at a given age than boys? (No. 6, p. 237.) Or is it only another evidence of the conservatism of the female in any species? Other facts will suggest the same question later in this paper.

Just as the local ideals diminish in number the historical and contemporary ideals increase to take their place. A comparison of the courses of these two curves in Fig. 1 will show quite accurately the respective influences of school life and literature and out of school interests. Preference for historic characters has a rapid development after the age of seven, culminating at

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eleven when it includes 61½ per cent. of all the ideals mentioned. After that age there is a gradual drop in the curve until at the age of sixteen it shows 48% of the ideals to be still historic characters. The rapid development up to eleven corresponds to the period of preliminary instruction in history, of interesting stories and dramatic incidents, of patriotic poems and idealized biography. The enthusiasm of a new and interesting study colors the pupils' thoughts. Suddenly released from the bondage of present time and place the imagination leaps at a single bound to some heroic figure, surrounded by a halo of childish fancy, far back in the years agone. From the age of twelve a more serious, prosaic study of history is carried on. "The real Washington," and the "real Franklin" are more critically examined, weighed in the balance of a sensitive adolescent conscience, and often found wanting. Still, enough of the glory remains to keep the characters of history largely in the majority.

The curve of contemporary ideals has a very different course. It rises gradually, with hardly a single deviation, from 9% at six years to 39% at sixteen, receiving a decided increment throughout the last five years in which the popularity of historic ideals is waning. The allegiance of some is here changed from those who have made history to those who are making history. In a sense there is a partial return toward the earliest condition. Little children choose ideals present in both space and time; later they tend more and more to choose ideals remote in both space and time; finally there comes, in many, the partial return to a condition where those are preferred who are living now, but are remote in space. This curve symbolizes the influence of home life and other agencies out of school as well, perhaps, as a certain change of emphasis in school work. It shows the effect of conversations with parents and friends, of reading the newspapers, magazines, and other current literature, of political campaigns, industrial disturbances, religious revivals, and of all other social phenomena that contribute to the development of an expanding personality.

Others who have written on this topic have not kept the historical and contemporary characters separate, so that we have no good basis of comparison of these two tendencies with those of other studies. If, however, our contemporary and historical ideals are combined, the comparison gives us the following table.

HISTORICAL AND CONTEMPORARY IDEALS.

Age	6	7	8	9	10	11	12	13	14	15	16
Minn. & Cal.		14%	30%	50%	60%	68%	75%	76%	82%	82%	80%
London			21	15	28	45	53	56			
New Jersey		24	29	44	52	59	66	69			
New Castle	16%	19	39	54.5	68	80	78	83	83	90	87

Here again, the lack of an established norm prevents our passing judgment. All show the same tendency, though the rate of change is in no two cases the same. The apparent lack of interest in public characters on the part of the London pupils is very striking, though, as Professor Barnes says, a comparison of a lower social grade of English children with average Americans is manifestly unfair. Miss Darrah found (No. 1, p. 90) that at the age of fifteen 29% of her boys and 20% of her girls named contemporary persons. At the same age 32% of the boys and 39% of the girls contributing to this research preferred characters still living, thus showing a greater interest in public affairs than the former.

As in the choice of acquaintances the girls surpassed the boys, so in the preference for historical characters they lagged behind from 5% to 15%. In the selection of contemporaries, however, no sex differences were discoverable, the lines frequently crossing each other, but maintaining the same general direction. However, in this class, the boys' choices were chiefly politicians, warriors and capitalists while the girls' were writers, philanthropists, and prominent women.

Lists are here given of all ideals receiving more than one-half of one per cent. of the choices of each sex.

	BOYS.			GIRLS.	
1.	Washington	34%	1.	Washington	24.5%
2.	McKinley	7	2.	McKinley	6.5
3.	Lincoln	5.4	3.	Longfellow	3
4.	Roosevelt	5	4.	Deity	2.7
5.	Deity	2.6	5.	Lincoln	2.4
6.	Longfellow	2.2	6.	Queen Victoria Martha Washington Alice Roosevelt	2
7.	Carnegie	1.4	7.	Roosevelt	1.6
8.	Columbus Edison	1.1	8.	Rosa Bonheur Louise Alcott	1
9.	Buffalo Bill	0.9	9.	Mrs. McKinley Helen Gould	0.8
10.	Nathan Hale	0.7	10.	Columbus	0.7
11.	Daniel Boone	0.6	11.	Mozart Whittier Miss Stone	0.5
12.	U. S. Grant	0.5			
13.	Ben Franklin	0.4			

Washington appears to be the great national hero, receiving the votes of one-third of the boys and one-fourth of the girls or more than four times as many as his nearest competitor.

Indeed, if we drop out acquaintance ideals, Deity, characters from books, general class, and the like, Washington receives almost as many votes as all others combined. Mr. Barnes found that 28% of the boys and 11% of the girls in his New Jersey study (No. 6, pp. 238, 239) chose Washington as their hero, while in some of the Trenton schools he was named by as many as 49% of the boys. In marked contrast with this is the condition revealed by the English studies. Miss Dodd shows (No. 3 b, p. 12) that so admirable a character as Queen Victoria, just at the end of her reign, was placed below Florence Nightingale and Mr. Gladstone in popularity, who received 16% and 15% respectively of the choices of the girls. The boys' preferences were also very scattering. Mr. Barnes's investigation exhibits the same condition. (No. 2, p. 6.) Queen Victoria is chosen by only 8% of the boys and 18% of the girls, being closely followed in popularity by Nelson, Gladstone, and more remotely by Florence Nightingale. There is no one character, or group of characters, that stand out in bold relief in the consciousness of English children as embodying all ideal virtues. Some one has well said that England has no national heroes. They do not even celebrate their holidays in honor of great personages, but prosaically give them such names as "bank holiday."

The question naturally suggests itself, "which is the more desirable condition, the great predominance of some one ideal, like Washington in the United States, or a great number of less prominent characters?" It seems to the writer that it depends largely upon whether the dominant ideal has been prematurely stamped upon the children or whether it has insinuated itself into the fibers of their being through a growing appreciation of its virtues. Prof. Barnes has already raised the same question in these words: (No. 6, p. 239.) "Is the personality of George Washington overworked in elementary education so that adults are tired of him? Is it well to use up our greatest Americans for nursery purposes?" A comparison of the preferences for Washington and Lincoln throughout the school years gives, it seems to me, a very pathetic answer to this question.

Age	6	7	8	9	10	11	12	13	14	15	16
Washington	5%	9%	15%	31%	38%	43%	39%	33%	28%	17%	16%
Lincoln	0	0	4	4	2	3	5	5	11	12	15

Washington is impressed upon little children at a time when they should be looking to their parents and playmates for ideals. And as a result the little ones give the same reasons for admiring "the father of his country" that they offer for emulating a neighbor's child. In order to have children appreciate an ideal outside of their experience, parents and nurses and even

teachers have to deck him in bright colors and endow him with childish virtues and sentimental attributes, as for example, the hatchet story. Consequently, almost in their babyhood, the little ones abandon their natural, helpful acquaintance ideals, and look to a distant, vague, imaginary character for guidance. Later, when from reading and experience the sugar coating is worn off they turn from their early idol in disgust. Is not that the story told by the decline in the popularity of Washington after the age of eleven? Compare with this the record of Lincoln in the above table. Babies know nothing of him. To most children entering school his name is strange. His character has not been lactated and peptonized for infant food. They come to their knowledge of him naturally, and as a result we find him gradually increasing in popularity until, among pupils of 16, he stands just 1% below Washington. This record seems to symbolize admirably the normal development of appreciation for national heroes. . The same course of evolution is shown to be true in the curves of McKinley and Roosevelt (most strikingly with the boys) and of the general classes "Writers, Artists and Musicians," and "Foreign Ideals." There seems to be slight reason for doubting, then, that children's idealizing of Washington is altogether abnormal, and that it has done violence both to the character of that worthy hero and also to the development of the characters of thousands of embryonic American citizens. May not this lesson be turned to account in teaching a due estimate of and regard for our great national characters hereafter? Aside from all this, it is doubtful whether it is best for a nation to have one ideal that stands out so prominently above others as does Washington. If an ideal tends to shape the characters of all admirers to conform to its own type, it must follow that unless it is desirable to have all members of society shaped to the same model and striving for the same ends, there should be a goodly number and considerable variety of national heroes and heroines.

If we come now to study the influence of religious life in determining children's aspirations we are somewhat disappointed. Only about 2⅔%, equally divided between the sexes, express themselves as wishing to be God or Christ, the latter being more often named. Bible characters are named by less than one-half of one per cent. nearly all being girls. This is a much poorer showing than that of any other study. Miss Darrah's study found 5% of the children, chiefly below the age of twelve and confined almost entirely to Minnesota children, to name God and Christ. (No. 1, p. 92.) Prof. Barnes gives 4% of each sex as the proportion choosing Deity in the New Jersey study, while not a single individual named a Bible

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character. (No. 6, p. 239.) Very different are the results of foreign studies in this respect. Mr. Young found the encouraging figures of 7% for boys and 13% for girls, as longing to be like Deity, in the Edinburg schools, though there was a marked falling off in both sexes after the age of eleven. Christ was named three times as often as God by the Scotch pupils. (No. 4.) Among the London children 7% of the boys and 14% of the girls, desired to be like God or Christ, while 4%, chiefly girls, named Bible characters as ideals. (No. 2, p. 7.) It is interesting to note that in every study it is the human side of Deity, Christ rather than God, that is preferred. Nearly all the reasons given for choosing Deity name purely human qualities. The following are representative:

Boy, 6. Jesus beecas he loves me.
Boy, 8. Jesus. Because he is a nice man.
Boy, 9. God. He ones the hole world.
Boy, 10. God is the grats man in the world.
Girl, 8. God. Because he is gentle, kind and good.
Girl, 15. Jesus. The only perfect person of whom I have ever read.

It is remarkable that the many admirable characters of the Bible exert so little influence on the development of character. We would expect Joshua, David, Samson, Samuel, Ruth, Esther, and Vashti to compete successfully with any characters of life or literature if children were brought to know them. And yet we find that more than four times as many characters are chosen from fiction and mythology as from The Book. Can it be possible that this study reveals the correct ratio between sacred and profane, religious and secular, influences brought to bear upon a developing soul? If so, a serious impeachment is brought against the church and Sunday school. Nor does the public school escape condemnation. It would seem that there is occasion for more concern than that manifested by the resolutions passed by the Summer School of the South at Nashville and by the National Educational Association at Minneapolis, last summer. Following a scholarly and earnest appeal before the N. E. A. by President Butler for the re-establishment of the Bible in our public schools the following paragraph was incorporated in its declaration of principles by the association.[1]

"It is apparent that familiarity with the English Bible as a masterpiece of literature is rapidly decreasing among the pupils in our schools. This is a result of a conception which regards the Bible as a theological book merely, and thereby

[1] See Proceedings of N. E. A. for 1902, p. 27, or Educational Review, Sept., 1902, p. 314.

leads to its exclusion from the schools of some States as a subject of reading and study. We hope for such a change of public sentiment in this regard as will permit and encourage the reading and study of the English Bible, as a literary work of the highest and purest type, side by side with the poetry and prose which it has inspired and in large part formed. We do not urge this in the interest of sectarian instruction of any kind, but that this great book may ever be the teacher's aid in the interpretation of history and literature, law and life, an unrivaled agency in the development of true citizenship, as well as in the formation of pure literary style."

But the use of the Bible in the schools is not all that is necessary; for the State in which this study was made has not excluded it. The Bible is necessary. "Literature needs the Bible. History needs the Bible. Morality needs the Bible, but above all young men and maidens need it when they are seeking for an ideal to sway their life."[1] But that is only one phase of the matter. The real, serious fault lies deeper. The truth is that our religious teaching has not laid hold upon life. It has been repeatedly asserted and never refuted that the teaching in our Sunday schools is the poorest on earth. Much of it is without aim, system or method. Seldom is any attempt made to relate the instruction to the natural interests of the students. And most of all, parents and others do not make their Sunday instruction a part of their week day life. Sunday and its activities are kept separate from other days. The last popular novel, the labor disturbance, the election, the markets,—yes, even the school, is a frequent topic of conversation in the home, in the presence of the children, but seldom the Bible or the church. That is a thing apart, and the child soon comes to realize that it is. His ideals are formed, as all his thoughts are, from the material that contributes most largely to the upbuilding of his experience. The school may be blame-worthy, the church may be also culpable, but the chief fault lies with the home. The remedy can be found only in an intelligent and sympathetic co-operation of these three forces, with the home in the lead.

It might be well in this connection to call attention to the apparent unpopularity of teachers generally. One would expect that teachers, coming in constant and close contact with their pupils for a number of years and especially engaged in the development of their minds and characters, would stand high in the series of ideals. For some reason this is not true. Of the girls, 4½% name a teacher, while only 1½% of the boys make such a choice. The teacher should occupy a place

[1] Editorial, Journal of Pedagogy, September, 1902, p. 8.

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in the evolution of ideals intermediate between the home and society at large. The school represents one of the first extensions of the child's world beyond the home. We would therefore expect the crest of the teacher curve to fall between the summits of the curves for home ideals and national ideals, say about the age of eight or nine. No such expectation is realized. The teacher is most popular at 6 and 7—when family and playmate ideals are oftenest mentioned—and rapidly declines in favor until the age of 11 for boys and 12 for girls, after which she is practically not mentioned. (No. 1, p. 92.) At no age does she receive as many as $\frac{1}{7}$ of the choices of girls or $\frac{1}{15}$ of the choices of boys. And yet the children studied here were all school children and their papers were written at the request, and in the presence of teachers. Moreover, with girls especially, teaching is a favorite profession. (No. 5.) Could there be a more convincing proof that our teachers, as a class, are not entering into that vital relationship with their pupils which the development of a sound, rugged, moral character demands; that they do not make themselves as necessary to the little ones as even their neighbors; that they are still kept as separate from participation in the real inner life of their "charges," as the school from their outdoor interests and activities? The lesson taught by this revelation is too patent to require comment.

Some of the ideals less frequently chosen bring out significant, but generally expected, sex differences. Military heroes and adventurers command the admiration of 5½% of the boys as compared with 1½% of the girls. The only girls naming such characters are included in the ages ten to thirteen, while the boys exhibit a constantly increasing preference culminating in 9⅓% at the age of 16. (No. 3 b, p. 13.) Civil heroes, leaders in times of peace, receive but scanty recognition, 0.8% and 1.3% of the girls and boys respectively. Difficulty has been experienced by some (No. 6, p. 240) in separating the military class from the civil, and we consequently have no means of comparing the results with those of other studies. In this study all national heroes with conspicuous military records were classed as military and all others as civil, with the exception of Washington, Lincoln, McKinley, and Roosevelt, whose adherents seemed too numerous to permit their being sunk in general classes of choices. The personal element in each case seemed superior to either mere military or mere civic virtue. The figures for Washington and Lincoln have been given. McKinley was chosen by 6.4% of the girls and 6.7% of the boys; Roosevelt was preferred by 1.6% of the girls and 5% of the boys. A comparison of the "military curve" thus deter-

mined with that for warlike virtues, given later, shows that the military class does not include too many.

Of all the writers chosen, Longfellow is the most admired, receiving the votes of more than 3% of the girls and more than 2% of the boys. Others frequently mentioned are Whittier, Eugene Field, Seton-Thompson, Louise Alcott, and Mrs. H. B. Stowe. Shakespeare received not a single vote. Rosa Bonheur is the most popular artist, and Mozart, Paderewski, and Beethoven the best known musicians. Combining the figures for artists, authors and musicians, we get decided tendencies which illustrate quite accurately the comparative attitudes of the sexes toward the arts.

AUTHORS, ARTISTS, AND MUSICIANS.

Age	6	7	8	9	10	11	12	13	14	15	16
Girls	0	0	5½%	4%	4½%	13.5%	10.5%	11.5%	17.5%	17%	18.5%
Boys	0	0	4	1.5	3.5	4	5.5	3.5	7	4	3

The choice of philanthropists brings out a similar state. Slightly more than one-half of one per cent. of the boys desire to be benefactors of mankind, while more than 2½% of the girls matifest that desire. While slight at all ages, the tendency is an increasing one with both sexes. Helen Gould and Miss Stone are oftenest mentioned by the girls.

Financiers are more generally preferred by the boys than by the girls, 2.2% and 1% representing the respective interests. Carnegie is the great favorite, though Cecil Rhodes is most popular with the girls. The boys are also more interested in inventors than are the girls, only 0.4% of the latter naming them as compared with 1.6% of the former. If the figures of the boys are platted a decidedly increasing tendency is revealed, culminating at 15 and 16. Edison is oftenest named.

Characters from books, mythology and popular superstitions are chosen by 2½% of the girls and 1½% of the boys. (No. 2, p. 7, and No. 6, p. 237.) Robinson Crusoe, Elsie Dinsmore, Little Red Riding Hood, Santa Claus, Atlas, Nick Carter, and Cinderella are representative of this class of ideals. More than 4½% of the boys and 5½% of the girls do not name an individual but some position or condition that they deem desirable. (No. 2, p. 5.) These were collated under the heading "general class." The following examples will suffice:

Boy, 6. A soldier. Because they are Brave.
Girl, 8. President. Because he gets lots of money.
Boy, 7. Baker. because I would get cakes and buns.
Boy, 8. A fairy, because I would like to change some things into other things.
Boy, 9. a apple becouse their sweet.

Girl, 9. Queen. I could rule the country.

Girl, 9. A President's wife. You could get lots of money.

Girl, 11. A snake charmer because they are traveling all the time. and they see all the cities and states and they see all over.

Boy, 11. Country fellow. You can go fishing and swimming.

A re-classification of the papers on the basis of American and foreign ideals reveals the following situation:

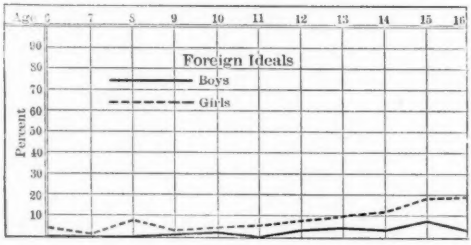

FIG. 2.

Figure 2 indicates that at every age girls choose more foreign ideals than boys and that the difference in tendency increases with age. What is the significance of the difference? In our discussion of acquaintance ideals the question was raised whether the choice by the girls of more local ideals indicates that they are less developed than boys. This figure seems to convey the opposite import. Broadened sympathies and diversified interests indicate developed mind. How can these conflicting tendencies be harmonized? It is probable that girls are not more cosmopolitan than boys, but that more of the things that tempt their ambition are foreign. The monarchies and aristocracies of Europe afford opportunities for women to shine socially and politically as they cannot in America. Then, too, the arts of literature, music, sculpture, and painting, which have a much greater interest for girls than boys, are best developed abroad. Europe is also the source of fashions of dress, of social customs and the like, which have an absorbing interest for the weaker half of our race. An examination of the girls' choices justifies this analysis of the situation. About 25% of the women and 20% of the men named by the girls are foreign. And of the foreign men chosen by them, 70% are devotees of the fine arts, while the women are either queens, or artists of some kind. On the other hand the careers which appeal to boys are quite as accessible at home as abroad; the activities of men bring them more often into competition than co-operation with foreigners; hence boys are less likely to choose foreign ideals than girls.

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Miss Dodds mentions Napoleon, Patti and Hans Richter as chosen by English girls, and Kruger, Emperor of Germany, and Julius Cæsar as mentioned by boys, among foreigners. It will be noted that two of the girls' choices are artists. (No. 3, pp. 13, 14.)

Most studies of ideals have pointed out the striking difference of tendency in boys and girls, toward selecting an ideal of the opposite sex. In all alike, an insignificant proportion of the boys choose female ideals, and in the early years only. Very different are the girls in this respect. In Miss Dodd's study 34% of the girls explicitly stated that they would rather be men than women. (No. 3, p. 7.) In the New Jersey study 35% of the girls chose a male ideal and the proportion was greatest with the older girls. (No. 6, p. 240.) The tendencies revealed in two other studies are shown in the following table:

CHOICE OF MALE IDEALS BY GIRLS.

Age	7	8	9	10	11	12	13	14	15	16
Minn. & Cal.	46%	48%	52%	53%	58%	63%	62%	68%	68%	51%
London		13	10	16	17	12	14			

It will be noted that at no age do more than 1/6 of the London girls name a male ideal while on the average considerably more than 1/2 of the American girls choose a man. Which is the more desirable condition? Again, Professor Goddard has shown in his admirable study that in their negative ideals most girls of a more mature age also select men; that is, they not only test the quality of their lives by comparison with those of good men but also by contrast with the characters of bad men. They accept no standard of their own sex.

Mr. Goddard's Table (No. 7, p. 394) is as follows:

NEGATIVE IDEALS.

Age	15 & 16	17	18	19	20-28
Boys choose women	0%	3%	1%	0%	0%
Girls choose men	47	60	52	49	59

Again, Miss Darrah's investigation showed that the girls were within from 2% to 15% of naming as many "masculine virtues" as the boys, throughout the entire school period from seven to sixteen. (No. 1, p. 96.)

And finally the present study shows that 51.7% of the school girls of New Castle, as contrasted with 3½% of the boys, choose ideals of the opposite sex. The lines of tendency are shown in Fig. 3.

What, now, is the meaning of all this mass of data? We are not surprised that a little boy should frequently find his ideal in his mother or grandmother or occasionally in a girl playmate; we do not wonder that a little girl should see in her

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father or uncle or boy companion a combination of ideal qualities worthy of her aspiration. But can we prevent a feeling of surprise that this tendency in girls should steadily increase

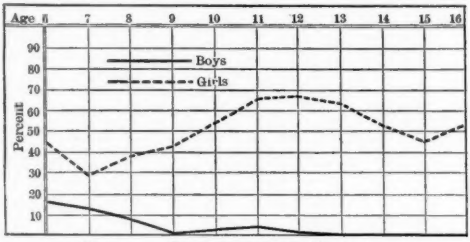

FIG. 3. OPPOSITE SEX CHOSEN.

through the years, and even during the years when the child is being made over into the woman remain sufficiently strong to include more than half of the sex. Can a girl become the best woman possible while holding before herself as an ideal of excellence the image of a man? That is the question we have to answer.

To the writer the situation is a much more serious and far reaching one, even than the above numerous evidences indicate. In no other phase of the study does such a great divergence of tendency show itself, not even in the citing of military virtues as justification for choice made. Miss Darrah concluded that "In the case of the girls, however, a divorce is evident between the ideals adopted and the line of life best suited to the interest of the race. The girl of to-day demands freedom, strength, independence, activity and recognition." She is inclined to put much of the blame on the kind of history taught in the schools. "Surely among the 'Pioneers of History,' enough women have played a part brave, strong, patriotic and wise so that material exists for commemoration. Far more than a 'Woman's Bible,' which appeals only to the mature, do we not need a 'Woman's History,' which shall become a factor in increasing this three-quarters of one per cent. who desire to become wives and mothers—which shall present ideals embodying the most attractive virtues, and still permitting a home." (No. 1, p. 98.) Professor Barnes suggests the nature of the situation in a series of pertinent questions: "Is it not true that with girls we are furnishing in our State schools, in both America and England, a totally inadequate line of womanly ideals? . . . . Is it not also true that we are still using a curriculum developed largely in boys' schools for co-educational work? If you doubt it read any of our school histories. Are Calhoun and Stonewall Jackson the best ideals

to be held before girls? Have America and England produced no women to act as centers of growth for our girls?" (No. 2, p. 11 and No. 6, p. 240.) And in another place (No. 6, pp. 279, 280) he says: "If one picks up a text-book on American history he finds that out of four hundred pages not more than one page is devoted to the work of women. In a collection of some forty biographies recently prepared for school work, only one deals with a woman. In all the material of the curriculum this general proportion is maintained. . . . . Is it not time that American histories intended for mixed schools should recognize the fact that women came with the men and that they have played important and heroic parts?" There is little doubt that the character of school books and school instruction have much to do with the condition. But the school mirrors the condition rather than causes it. It conforms to social movements rather than directs them. Behind all is the modern movement for the "emancipation of women." The reaction against the old restraint and limitations of all kinds has been so vigorous in America that the great body of the sex has been carried over to the other extreme. This reaction has been much less marked abroad, and there is correspondingly only a slight tendency for the girls to choose masculine ideals. (No. 2, pp. 10, 11.) The flooding of the various professions by women is an evidence of it. In the keen excitement of partaking of new liberties and enjoying new culture, woman has failed to distinguish between equality of opportunity and education with man, and identity. Becoming more and more jealous of her new prerogatives, she has insisted not only on having the same education but in entering upon the same life work. She has insisted not only on pursuing the same studies but on reciting in the same classes from kindergarten to university. To ask her to use different books or to hold up to her a different set of ideals would be construed at once as an attempt to reduce her to her former servitude (?). What else means the abandonment of the home for the office? What else means the formation of societies for the encouragement of motherhood? What else means the recent discussion and adoption of the plan of seggregation by one of our foremost co-educational colleges? What else means the urgent demand for training in home economics in our colleges for women? What else mean a hundred other alarming manifestations that are beginning more and more to attract the attention of social philosophers? The question of co-education was believed to have been finally settled a generation ago. But it has been all unsettled by researches in adolescence as well as by studies of certain perplexing social problems, and the battle will have to be fought over again with, it is hoped, at least a modified result. A few

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far-sighted prophets have read the handwriting on the wall and have called a halt in no uncertain tones. But the large mass of humanity is blind to the danger. President G. Stanley Hall has been among the first and most persistent in demanding, both by tongue and pen, a change in the education of women, adapting it both to their organic structure and to their functions in society. A few others have nobly seconded his efforts.[1] Miss Katherine E. Dolbear's suggestive little paper[2] should be read and pondered by every person interested in human progress. That can hardly be called an ideal education for women which permits 18 out of 100 college girls to state boldly that they would rather be men than women. (No 19, p. 3.)

It begins to appear that in her so-called emancipation woman cut loose from her old moorings, without anchors aboard, before she had selected any definite point as a destination. She has been drifting ever since without any well-defined ideals of her own, wildly clutching now at this, now at that condition, without any regard for consistency or natural adaptation. Biology teaches that the female of any species is the more conservative element. That variations are to be looked for in the male. Is there any evidence of conservatism in the condition just described? Is man or woman the greatest variant of the present time? Can the latter hope to reverse a fundamental law of life by an idle striving, or to bring anything but evil to the race in the attempt?

More than half of the girls choose male ideals because there is no definite body of ideals to which they can look as characteristic of the sex. Femininity seems on the verge of disintegration. Unless there is a change of trend we shall soon have a female sex without a female character. A vast majority of our teachers are women, and having vague or masculine ideals of their own, they prevent rather than encourage the development of a well-knit personality in the girls about them. The girls in this study name 104 ideals other than local as compared to 88 named by the boys. Moreover, of the 104, 49 were males. At every age from eight to sixteen, the girls name from three to twenty more ideals than the boys. All these facts indicate a condition of diffused interest, of lack of clear cut purpose, of need of integration. If concrete ideals are helpful to adults, how much more necessary must they be to characters in the process of formation, to serve as neclei about which personalities may be organized, and as sources of perennial inspiration! The schools may take the lead in the

[1] See, for example, "Plain Words on the Woman Question," by Grant Allen, Popular Science Monthly, Vol. XXXVI, p. 170.

[2] A Few Suggestions for the Education of Women, *Pedagogical Seminary*, Dec., 1901. Vol. VIII, pp. 548-555.

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solution of this problem, by revising their books and methods of work and by supplying a better class of ideals for girls, but the evil is too deep-set to be removed by a single agency. It will have to become a matter of social consciousness; an intelligent public opinion will have to be educated to re-enforce the efforts of the school and give them the stamp of public approval before we may hope for any decided change.

It is greatly to be regretted that no studies have been made of the ideals of girls of more mature years, in order to discover what becomes of this strong tendency. The only attempt made in this direction thus far was based on papers written by fifty-two women and thirty-eight men, all teachers in attendance at an institute in Hunterdon County, N. J. Mr. Barnes, who examined the papers, expressed surprise that while the choices of ideals by the men continued the outgoing tendency shown in the answers of the older boys, the women exhibited a reversion to the more primitive type of acquaintance ideals. (No. 6, pp. 359, 360.) While there is no assurance that studies of a larger number of women would confirm this apparent reversal, it is what the writer would expect. Having formed ideals of life and service that are largely masculine, and having been disappointed in the realization of these ideals through natural limitations, or through hostile social conventionalities and traditions, there is nothing left for a woman but to fall back upon the ideals characteristic of her sex in its earliest years. Were the development along this line normal, disappointment at any stage would not result in so great a reversal.

Coming now to a closer inspection of the feminine ideals chosen by less than half of the girls, we find that they readily fall into two distinct groups; viz., women who are famous for their own position or achievement, and those who owe their greatness to some relationship to a great man.

Examples of these two classes are the following:

Famous women:

Girl, 8. Queen Victoria. Because she is honored and is queen of America.

Girl, 9. Miss Keller, because she is blind, deaf, and dumb and because she can write a good story of her life.

Girl, 10. Helen Gould, because she has a home for little orphans, and because she is kind.

Girl, 10. Mrs. Elizabeth Ross. Because she made the first red, white and blue flag.

Girl, 11. Miss Alcott, because she wrote such charming books.

Girl, 11. Queen Isabella. Because she helped Columbus get ships.

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Girl, 13. Miss Sullivan. Because she taught Helen Kellar and I think I should have liked the work.

Girl, 14. Clara Barton, because she is a Red Cross nurse and saves a good many lives.

Girl, 15. Rev. Anna Shaw. She is a great temperance woman.

Girl, 16. George Eliott. A great writer.

Girl, 17. Jane Fox. Because she was one of the greatest detectives of the day.

Women related to great men:

Girl, 9. Miss Rockfeller, because she is rich.

Girl, 9. Lincoln's wife, because he was a president.

Girl, 9. Mrs. Washington. Because she never told a lie.

Girl, 10. Martha Washington. Because she was the president's wife.

Girl, 11. Alice Roosevelt, to live in Washington and travel across the ocean and to go from one country to another.

Girl, 13. Virgin Mary. To be one Mother of Christ.

Girl, 13. Mrs. Whittier. Because she was good.

Girl, 16. Mrs. Roosevelt. Because she is the president's wife.

The lines of tendency are shown in Fig. 4.

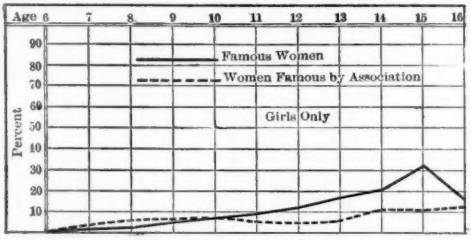

FIG. 4.

It is quite remarkable how completely this figure illustrates the tendency discussed in connection with Fig. 3. Up to the age of ten, girls choose about twice as many with reflected greatness as those great in their own merit. But after that age the proportion is almost exactly reversed. The opinion is not advanced here that women should not take as ideals women who have made themselves famous. Many of that class named in this study are most admirable examples of ideal womanhood. But this figure certainly emphasizes the truth of the statement that school and social training tend to make our girls long more for independence, freedom from restraint, strength, and personal recognition, than for the more modest sphere of home life and the sharing of another's honor. All

the studies of Vocational Ambitions bring out this tendency. (No. 5, p. 485; 19, p. 4; 12, p. 247; 11, p. 42; 15, p, 141. Compare, also, the figures of the English studies, No. 17, p. 249; 18, p. 262.) Both these tendencies, it will be noted, receive a noticeable impulse during the adolescent years, accompanied by quite a decided drop in the curve of choice of male ideals in Fig. 3. It is here that nature reasserts herself for a short time in spite of training, and reclaims some of the drifting ones for their manifest destiny. It must be admitted, in due justice, that there are too few ideals of the domestic type to tempt girls' ambition. Such characters as Queen Victoria have their domestic virtues so overshadowed by their political qualities that they receive scant recognition. And yet several of the girls of this study made special mention of Victoria's motherly ministrations in her home. Says one girl of thirteen:

"I would like to be Queen Victoria because she was good to all the poor and rich. She treated all her people the same, and she had a large family of children and she raised them like any other would the nurses did not have all the care of her children. She learn each one a trade for fear they would in need some day and they would have something to fall back on. neither did she neglect their education this showed how thoughtful she was."

Another, age fifteen, says:

"I would like to be like Queen Victoria because she was a good christian woman and very kind and knew how to mind her own business and knew how to bring up her children in the proper way."

It is of some significance that both of these girls were of English parentage. What we need in America is a more outspoken appreciation, even idealization, of the domestic and womanly virtues of the great ones among the weaker sex.

II.

In tabulating the reasons given for the ideals named, none of the classifications used in the earlier studies were found to be adequate. Indeed it was a very difficult matter to classify the reasons on any basis, as they shade so gradually into each other as to make distinct division lines almost impossible. However, the following classification was finally adopted, with the given results, and probably represents as well as any could the various kinds of motives.

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Reasons for Choice.

Age	6	7	8	9	10	11	12	13	14	15	16	Total
No reason	52%	41%	25%	15%	7%	0.7%	2%	7%	2%	3%	1%	12%
Good, Nice, Kind, etc.	26	26	28	33	27	22	16	11	14	8	7	21
Material Possessions	4	7	7	7	9	7	5	6	5	5	3	6
Personal Appearance, Conventional Traits, etc.	4	5	3	3	1	0.7	0	1	0	0	0	2
Position, Honor, Fame, etc.	0	2	11	17	19	23	20	16	15	19	17	16
Intellectual or Artistic Qualities	1	2	2	2	4	4	4	9	10	7	17	5
Moral Qualities	2	5	12	17	21	27	34	29	29	29	25	22
Civic or Political Qualities	0	0.6	.75	1	2	4	4	6	10	8	13	4
Military Qualities	1	0.6	1	5	15	12	15	16	13	15	9	10
Power to do Things	1	3	5	3	4	11	12	8	8	11	8	7
Desire to Help Others	2	0.6	.75	1	0.6	3	5	6	8	7	9	3
Personal Liking	1	6	5	1	2	0.3	0.7	0.4	0	0	0	2
Miscellaneous	4	2	4	4	2	3	2	2	1	3	0	3

Plotting the most prominent tendencies we get the result shown in Fig. 5.

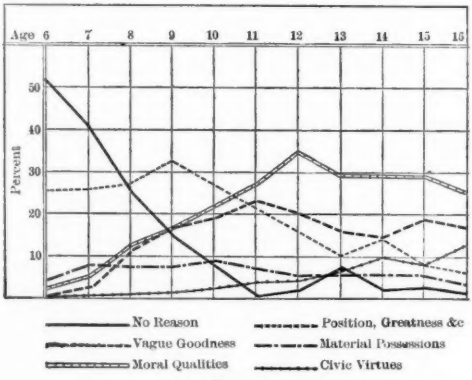

Fig. 5.

It is shown that at the age of six one-half of the children give no reason for their choice. This proportion rapidly diminishes to one-fourth at eight, and at the age of eleven and thereafter practically every one gives some justification for his choice. About 12% of all making choices, 11% of the girls and 13% of the boys, fail to give any reason for their ambition. Prof. Barnes found only 3% of the New Jersey pupils in this class, and about ⅔ of them were boys. (No. 6, pp. 199, 200.) In his London study, however, 22% of the boys and

only 5% of the girls mention no reason. (No. 2, p. 7.) This great sex difference he accounts for by his theory that the girls are more servile than the boys and do what they are told. No such difference can be noted in the New Castle papers after the age of eight. A part of the great difference between the children of New Jersey and New Castle, in the number failing to give a reason, is no doubt due to the inclusion in the latter group of a large number of 5 and 6-year-old children.

A second rapidly diminishing tendency whose curve runs almost parallel with the first after the age of nine is the tendency to give some vague sort of reason which has been called "undifferentiated goodness." In the consciousness of children giving such reasons, the virtues are still in a state of solution and have not yet been crystallized out. Children are not accustomed to analyze a situation. They feel rather than think about their ideals as about everything. They take experiences as vague wholes which are later clarified and differentiated into related parts, as the power of analysis develops. Hence little folks can give no reason for admiring a certain character, or only a very general one, as "Washington, cose hes good," "My uncle. He is nice," "She is good, and she is kind," etc. 22% of the girls and 21% of the boys give such a reason, the girls being much in the lead during the first four years studied. This shows no inferiority on the part of the girls, for more of the boys fail to give a reason. The answers of 30% of the London children belonged to this class (No. 2, p. 7), showing them to be somewhat more backward in development than American children. Reference to the table or to figure 5 shows us that until the age of nine from three-fourths to two-thirds of the children either give no reason at all or some vague reason of this general class. (See also No. 8, p. 16, for the same tendency brought out in another English study, indicating superiority of American children at the same age.)

There is another class of reasons the study of which has afforded the keenest interest, and which has not, to my knowledge, been noticed in any earlier study. I refer to a kind of statement which is really not a reason at all, but some mere irrelevant, perhaps accidental, idea associated with the choice. Reference is made to such statements as:

Boy, 6. Miss ——. She lives in Sharon.

Girl, 6. Red Riding Hood. She took her grandmother pie cake.

Boy, 9. I like to be Willie Jones. Because they live in Canton, O.

Boy, 9. Prince Henry. His name was Henry and I like that name.

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Boy, 12. George Washington. Because he was first in war, first in peace, and first in the hearts of his countrymen.

The statements of this kind constitute a ratio that rapidly diminishes with increasing age. The series, sexes combined is as follows:

Age	6	7	8	9	10	11	12	13	14	15	16
Irrelevant statements	11%	11%	7%	2%	3%	1%	2.5%	2.5%	0%	0%	0%

Have we not here a close parallel to the development of the concept of causality? What are cause and effect but two ideas always occurring in consciousness in the same inseparable sequence under the same conditions? One phenomenon is said to be the cause of another because it invariably happens in connection with it. The only way in which the real cause of an event can be learned is through extended experience which gradually discovers and rejects the accidental, adventitious, occasional associates and retains that one phenomenon out of association with which it is never known to occur. In the early stages of development any one of a number of associates may be given as a cause; very slowly are the unessential concomitants and antecedents lopped off and the so-called cause left. At the age of six, 11% of the children give as a cause of their choice a mere chance association. Their conception of causality is yet vague. It is not until the age of fourteen is reached that every reason given can be accepted as a real cause. Then, only, have all attained at least a practical working notion of causality.

A few apparently unable to pick out the details which would constitute a justification for their choice, or unwilling to lose an opportunity to convey a bit of information which they possess, narrate all they know of their hero. Of such are the writers of the following:

Boy, 13. Daniel Webster when he was a little boy and his brother ezekly caught a woodchuck and was going to kill it and Daniel was a fine little boy about fifteen years old and his first case was about a woodchuck. Daniel brother was going to kill the woodchuck, Daniel said to his brother ezekil let us go to our father and the boys when Daniel father said ezek you be a witness againsest the woodchuck and you Daniel you be a witness for the woodchuck and the case becan Ezekil was first to speak Ezekil said that the woodchuck was doing too much damage and the father said that right and next Daniel was called to speak Daniel said the poor thing wanes something to eat well we do. look at the poor trembling creature Daniel father said ezekil let that wood chuck go let the wood chuck go.

Girl, 13. I would like most to be like Ethelbert Nevin. I

think that Ethelbert Nevin wrote or composed some of the *sweetest* music ever I heard. Especially "Narcissus." I don't believe that I will ever get tired of listening to it. It is on of five pieces of music. These five go together, but I like "Narcissus" best. I have often wondered why he wasn't permitted to live longer.

Some are excellent examples of confusion. One sample will suffice:

Girl, nine. George Washington. Why because he was our first president he was the first in war first in peace. And he discovere Ameraca and the people thought that if they would go down South that the Ocean would be boiling and George Washington knew that When he go far enough that it would get cool.

No doubt some will be surprised at the comparative insignificance of the part played by the hope of material possessions in children's motives. We have been scornfully called a nation of shop keepers, and it is the popular belief abroad that we care more for the almighty dollar than for our soul's salvation. Yet, but 6% of these school children hold the desire for wealth and its advantages above other hopes. We would expect this to be overwhelmingly a boy's motive, but there is not a striking difference in the sexes with reference to it, 5% of the girls and 7% of the boys belonging to this class. Figure 5 shows that desire for wealth is greatest at the age of ten and thereafter steadily diminishes. Considering the great prominence of wealth and the commercial interests of the city this is a very good showing, and an evidence that the schools have done something to draw children's attention away from the sordid material ambitions of many of the adult citizens. Professor Barnes found 10% of the London boys and 14% of the girls studied by him to have pecuniary ambitions back of their choices. (No. 2, p. 8.) In New Jersey he found 4½% of the boys and almost 6½% of the girls to belong to this class. In neither of these studies is any decided tendency toward increase or decrease discoverable. Miss Darrah's study, however, with the figures for the sexes combined, shows a decided drop in the curve from 10% at the age of seven to 2% at fifteen. But how shall we explain the predominance of the girls in Barnes's two studies? His own suggestion, in the case of the English girls, is that in shopping and marketing girls are more busy than boys and consequently come to have a clearer appreciation of the value and need of money. It is, perhaps, to be expected that a study of vocational interests would bring out a greater desire for wealth and its advantages than would a study of general ideals. Money is more closely associated with business than with ideal lives. A reference to the stud-

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ies of prospective vocations shows the reality of the expectation. Mr. Taylor (No. 10), and Mr. Thurber (No 11, p. 44) show the number actuated by desire to earn money, sexes combined, to rise from 24% at seven to 54% at twelve and then drop to 25% at fourteen. Mr. Jegi found that boys' ambition for wealth diminished from about 55% at eight to 45% at fourteen, and that the girls were, on the average, 15% below them. (No. 15, p. 142.) In Mrs. Willard's paper 26% of the boys and 16% of the girls choose occupations because of their money earning value. (No. 12, p. 247.) This comparison shows then that there is no uniformity in the attitude of the sexes toward material possessions, nor in the attitude of either sex at a given age. Perhaps a uniform basis of classification would bring some order out of the apparent chaos. That a study of vocational interest brings out the material motives more sharply than another is shown in a comparison of two other English studies. (No. 8, p. 13 and No. 18, p. 261.) The first line represents the number naming money as the motive for choosing an occupation among girls in London Board Schools. The second shows the number of children in the same kind of schools who mention material possessions as ideal qualities of the queen.

Ages	7	8	9	10	11	12	13	14
Girls					27%	36%	37%	46%
Girls and Boys	45%	42%	32%	25%	25	22	17	27

The tendencies are precisely opposite. It is evident that the time is not yet ripe for generalization on this topic.

We come now to several minor classes of motives which show no tendency to become prominent at any age, and which exhibit no marked differences of sex preference. Two per cent. of the girls and slightly more than one per cent. of the boys, speak of personal appearance or some conventional accomplishment. No one, except three girls of thirteen, refers to such qualities after the age of eleven. (Compare the great and increasing prominence of "manners" in the consciousness of English Children, No. 14, p. 147. Miss Darrah places between 3% and 4% of the children of her study in this class. No. 1, p. 90. Barnes found 4% of the London children to speak of personal appearance. (No. 2, p. 8.)

A personal liking for the ideal selected is given as a reason by 2% of the girls and 1½% of the boys, practically all before the age of ten. The power to do some particular thing is cited by 6% of the girls and over 7% of the boys as a sufficient vindication of their choice of ideal. (No. 6, pp. 199 and 200. Professor Barnes shows the New Jersey boys and girls to be much more desirous to do certain things. In this class he puts 12% of the girls and almost 10% of the boys. It is possible that a

difference of classification may account for the differences in result.) This characteristic is most marked in both sexes after the age of eleven. It is then that children begin to long to accomplish definite ends. The active side of citizenship appeals more and more to them, and they cast about to discover their mission. Examples of this type of reason are:

Boy, 7. Motorman on street car to race Jamy.

Boy, 12. Llewellyn Sweet. Because he plays ball all the time.

Boy, 13. Buffalo Bill. Ride horses lasso ponies be a good shot.

Boy, 12. Roosevelt, to fight the beef trust.

Girl, 11. I would like to be Louis May Alcott and write such nice helpful books to help some person and to have a warm spot for myself in every person heart.

About three per cent. of the reasons were so varied as to defy classification and were, therefore, grouped together as miscellaneous. This class runs, almost equally prominent, throughout the school years, probably diminishing slightly in the teens.

Among the increasing tendencies the preference for moral qualities is most prominent. It reaches its greatest intensity at the age of twelve, and then declines slightly through the following years.

This does not indicate a deterioration in the kind of qualities preferred but a differentiation. The general moral qualities give way somewhat to the more specific civic virtues and definite altruistic activities, which more than make up for the decline in the former. So that the general development is still in an upward direction. In the naming of moral qualities the sexes are about equal until the age of ten, after which the girls take the lead by 4% to 10% until at the age of fifteen they drop below the boys. This decline is probably accounted for by a decided rise in the girls' curves for civic virtues, love of position and intellectual qualities, all of which, be it noted, are ordinarily classed as masculine qualities, and which tend to sustain the contention that girls are striving unduly after masculine ideals. However, in general, the qualities selected by both sexes as characterizing their ideals are of a high order (See Dr. Goddard's list of qualities despised by young men and women. No. 7, p. 395.) and cannot but give one a roseate and optimistic outlook in a commercial and materialistic age. As none of the other writers on this topic has kept the moral qualities in a separate class, we have no means of comparing these results with others.

A conspicuous, increasing tendency, almost equally prominent in the answers of both sexes, is brought out in figure 5

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by the curve representing the class "Position, Fame, Honor, etc." This tendency is seen to culminate at the age of eleven, indicating that after that age young people come to see more and more clearly that there are nobler elements in a great career than mere reputation. They learn to penetrate below the reputation and to pick out the qualities and activities that have created it. This class of reasons is more liberally used by the boys than by the girls, by from 5% to 10%, between the ages of nine and fourteen inclusive. At fifteen and sixteen reputation appeals more strongly to girls. The following table shows that the New Jersey children are less attracted than are those of either London or New Castle by the glamor of position and honor.

POSITION, HONOR, GREATNESS, ETC.

Age		6	7	8	9	10	11	12	13	14	15	16	Total
New Castle	Boys	0%	1%	11%	21%	21%	27%	22%	21%	20%	12%	15%	18%
	Girls	0	2	11	12	15	19	18	11	10	25	19	13
New Jersey	Boys		1	2	6	8.5	4	12	11				6.5
	Girls		1	1	7	7	6	11	11				6
London	Boys			16	9	16	24	27	23				20
	Girls			10	6	13	22	29	31				

Least prominent among the increasing tendencies represented in Figure 5 is that of civic and political virtues, but none shows a more persistent, uninterrupted increase. In none of the other studies has this class of motives been kept separate, though the desirability of a knowledge of the development of such a tendency must be apparent. Coincident with a decided decline in the curves for "general goodness," "moral qualities," and "position" there is a steady rise in the curve of "civic virtues," showing how the dawning consciousness of citizenship is making more and more demands for the application of the general moral virtues to the conditions of society at large and to the relations between the servants of the people in public life. It has been a matter of great satisfaction to the writer to note that a large proportion of the civic virtues referred to by the children of this study were in connection with the character of our great Lincoln. With these embryo citizens Lincoln is *par excellence* the model of perfect, patriotic, civic virtue, as Washington is of the goody-goody virtues of the younger ones. Certainly no better ideal could be held up to the rising generation of young Americans, to fire their enthusiasm for patriotism and loyalty to their country, in an age of unprecedented political corruption, than our first martyr-president. And the respect in which he is held by the older pupils, as compared with Washington has a direct bearing on what was said, on an earlier page, concerning the premature thrusting of ideals from without their field of experience and interest upon little chil-

dren. It is to be hoped that our other national heroes may be spared the fate of the unfortunate "father of his country."

It is also a matter of interest that the girls are practically the equals of the boys in the appreciation of the best qualities of citizenship. The lines of tendency take almost identical courses until the age of fourteen at and after which the boys take a considerable lead. But the number of each sex is woefully small—only 3% of the girls and 4% of the boys. Surely after eight or ten years spent in schools supported by the State, after having studied the history and government of their country, a much larger proportion of the pupils should regard civic and political virtues as the elements of greatest excellence in the characters of our national heroes. It would be very interesting and valuable to know just how much farther the differentiation of general goodness into specific social and civic virtues has gone by the end of the high school course. It is a source of constant regret that high school students were not included in this study. By confining his studies to papers written about Queen Victoria by London children (No. 8, p. 18), and about President McKinley by American children (No. 9, p. 29), Mr. Barnes got a considerably larger proportion of political virtues than the above. No doubt such a restriction in this study would have brought out a better showing.

All studies, both of ideals and vocational ambitions, have made much of the development of children's altruistic and philanthropic motives, of their expressions of desire to help others. Mrs. Willard found that 5½% of the boys and 9½% of the girls gave some form of philanthropy as a justification for their choice of occupation. (No. 12, pp. 246 and 251.) Miss Wykoff's study (No. 5. p. 486) reverses the proportion, the boys giving over 7% of altruistic desires and the girls but 5½%. Mr. Barnes's New Jersey study gives the meager figures of 1½% for boys and 2½% for girls. (No. 6, pp. 199, 200.) Other investigators find a marked altruistic tendency increasing rapidly with age and with the girls generally outranking the boys, as shown in the following table.

ALTRUISTIC TENDENCIES.

Age		8	9	10	11	12	13	14	Total
London	Boys	0%	2%	2%	9%	8%	15%		13%
	Girls	1	8	12	18	35	49		
Scotland	Boys	2	4	4	6	5	6	13	
	Girls	0	5	9	11	12	22	37	
Milwaukee	Boys	20	12	4	11	6	5	7.5	4.7
	Girls	14	21	12	34	16	25	30	9.7
New York (Sexes Combined)		4	8	15	25	37	39	36	
London (Girls only)		9	13	17	19	13	21		

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We seem to be justified in drawing several conclusions from a comparison of these figures. (1) Girls are very much more altruistic than boys. Women are the great philanthropists. Were it not for them the amount and quality of our charity work would be scarcely worth mentioning. Occasionally some man on account of unusual resources and opportunities electrifies a nation by an act of munificence, but the very notoriety of the act proves its unusualness. Women are our every day, inconspicuous, practical altruists. (2) In so far as the boys' figures exhibit any tendency at all, it is toward an increase in altruistic motives with age. This is characteristic of the race as a whole, as it increases in civilization and culture. (3) With remarkable uniformity the world over, girls undergo a rapid expansion of their philanthropic and altruistic instincts, beginning at an early age. (4) A number of the studies, including one not used in the table (No. 13, p. 135), show a falling off in the altruistic tendency, about the age of 12 or 13, with a subsequent increase. This unexpected drop is probably not accidental. Prof. Barnes has suggested (No. 17, pp. 252, 253) that it could hardly be expected that the child's outgoing impulses should grow steadily until puberty without meeting a check from unsuccessful attempts to realize them, and giving up for a time in discouragement. His optimism and altruism recover with broader experience.

With all these conclusions the present study agrees. Figure 6, I, shows the greater philanthropy of the girls, the gradual increase in tendency in both sexes, the drop in the curve of the girls at thirteen and of the boys at fourteen. The percentages for both sexes are much lower than those of most studies quoted, constituting but 5% of the girls and less than 2% of the boys. The break in the girls' curve at fifteen is probably accidental. It will be noticed that many of the figures show a decided drop or rise at fifteen or sixteen. That is believed to be due to an insufficient number of papers for these ages (106 at fifteen and 75 at sixteen, sexes combined) and to the additional fact that persons of those ages still found in the grades, are of inferior intelligence and likely to exhibit a reversal of the natural tendency for the age.

Another class of reasons, presenting great sex differences, as would be expected, is the large group named "military," made up of all references to adventure, heroism, strategy, courage, and the like. As shown in Figure 6, III, boys have a constantly increasing admiration for military powers up to the age of fifteen, when fully one-third of them prefer it to other forms of renown. On the other hand the only girls who speak of that as a commendable virtue are included in the five years ten to fourteen. This period, it will be noted, is the age at

which history is being studied in schools and military success is made much of. It is probable that few American boys grow to maturity without at some period of their development having

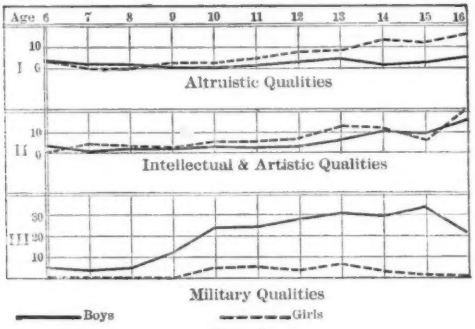

FIG. 6.

an ambition to be a soldier. The fighting spirit of the race persists in spite of our having adopted the arts of peace. In all, 18½% of the boys and 2% of the girls prefer military glory. Other studies have used a different basis of classification and do not therefore present any data for comparison. Mr. Young found "bravery" mentioned less with advancing age (from 40% at eight to 14% at fourteen), but he gives no other military qualities (No. 4). Miss Darrah's study contains the heading "Bravery, freedom, adventure, war" for which the figures run,—at seven 5%, at twelve 19%, at fifteen 13%. (No. 1, p. 90.)

In ideals selected by school children and written as a school exercise, it would be natural to expect a large percentage of intellectual and artistic traits to appear among the typical qualities. The expectation is not justified by this study. Only 3½% of the boys and 6% of the girls characterize their ideal as chosen because possessing such attainments. The curve representing the combined figures of the sexes rises quite gradually to 17% at the age of sixteen. Figure 6, II, indicates that the girls are superior to the boys in this characteristic by several per cent. throughout almost the entire school period. Professor Barnes gives 6% as the proportion representing this class of motives among the London Board School Children. (No. 2, p. 8.) Miss Darrah's study shows a decided increase of appreciation for "intellectual ability or accomplishment" as given in the series; seven years 3%, twelve years 10%, fifteen years 12%. Artistic qualities are not included. The New Jersey study reveals a decided sex difference (No. 6, pp. 199,

200); boys 3½%, girls 8%. In Dr. Goddard's study of "Negative Ideals" (No. 7, p. 395) the same slighting of intellectual powers is shown in the small number of students who include "neglected education" among the undesirable conditions of life. (See also No. 8, p. 17.) We are justified, then, in concluding from this and from other studies that (1) compared with other motives, intellectul and artistic ability plays an insignificant part in the selection of ideals; and (2) that girls esteem these qualities for their own sake much more highly than do boys.

In several recent studies the writer's attention has been drawn to a characteristic in the answers of many of the young children which, on reflection, he has concluded to be illustrative of a fundamental principle of child mind. The same characteristic appeared so striking in the present study that the significant answers were collated with a most convincing result. The characteristic referred to is the tendency of little folks to speak of a past event in the present tense, of a distant person or place as though right at hand. The younger the child the more does he tend to eliminate space and time—both past and future. The intensity of his emotional nature and the consequent vividness of his imagination cause the child to launch himself right into the midst of a remembered or suggested situation. The only reality to him is the present experience. He can only think of the coming birthday party or visit to the country as he, in imagination, projects himself into that situation and actually lives it. Similarly he can think of his ideals and speak of them only as living now and in close personal relationship with himself. A few examples of this kind of answers are given:

Girl, 6. Washington. Cose hes good.

Boy, 7. McKinley. Because he vots.

Girl, 7. Washington. Because he has white hair.

Girl, 7. Queen Victoria. Cose she is good.

Boy, 8. Lincoln, Becos he is a presantdent.

Boy, 8. Samson. Because he is the strongest man in the world.

Girl, 8. Mother of Jesus. Because she is a good woman.

Girl, 8. Martha Washington. She is the preasants daughter.

Boy, 9. Daniel Webster, because he is the greatest lawyer in the United States, and he is a very fine person.

Boy, 10. Roberson crussow. Yhy he goes out hunting he lives in a cave he catches dears and all cinds of animals.

Girl, 11. George Washington's mother. Because she is always kind.

In order to discover what proportion of the answers for each

age were of this type, all the papers referring to characters not living at the time of choice were carefully gone over and the tense of every verb noted. Many of the statements contained no verb and no other sign to indicate whether they referred to past or present time. Examples of this class are: "Dr. Talmage. The best writer in the world." "George Washington to no lot of things." "Raphael. Very good painter and sculptor." "John Marshall. Supreme Court." All such replies were excluded. Only those which definitely used a present or past tense were counted, and using the total as a basis the percentage of the present tenses for each age was computed. The line of tendency discovered is shown in Fig. 7.

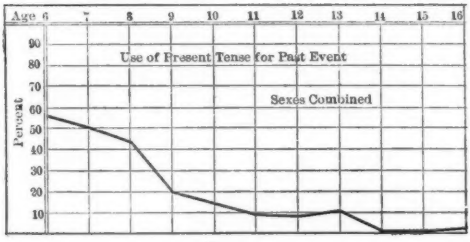

FIG. 7.

Unless the figures have been misinterpreted, there could hardly be found a more convincing demonstration of the gradual evolution of a true perspective in locating events in time and space. The principle is true of both sexes though the girls give a somewhat larger percentage of answers of this kind at almost every age than do the boys, as we would expect from their more emotional and imaginative organization. Indeed it is very significant that during the ages from eleven to thirteen inclusive, when the girls' curves for "intellectual and artistic qualities" (Fig. 6, II), "altruistic tendencies" (Fig. 6, I), and "Writers, Artists and Musicians" (table, page 115),—all dependent on emotional and imaginative characteristics—make their first decided deviation from the boys' curves, then also their tendency to speak of historic ideals as living now shows a decided rise over that of the boys.

It may seem to some that perhaps the use of the present tense in the cases just discussed is purely accidental and has no psychological significance. If that be true we should expect to find an equally large percentage of statements using a past tense to describe characters still living, and we would expect such percentage to be largest in the earliest years. Now, a careful examination of the papers discovers only three girls and five boys making such statements, and with two excep-

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tions they are all beyond the thirteenth year. And in half of these cases the past tense refers to some past act of the person rather than to a trait of character or to his life as a whole, a perfectly correct usage. We must, then, admit the proof of the principle.

This study has some very decided evidence to offer agaiust the claim often urged by opponents of such investigations as this that children's answers are purely accidental, that they are determined by any passing interest or any unusual event that may occupy the child's attention, and that they are therefore worthless for purposes of generalization.

No encouragement of such a belief can be found in the papers of these children. It is not our purpose to deny that children are affected by what goes on around them. To deny that would be to assert that they are not social beings, if not, indeed, to deny that they are organisms. That they are influenced by environment every one will admit. That their choices of ideals are purely accidental the writer, at least, refuses to believe. The principle here insisted upon is that the choices of little boys and girls are determined by laws just as inflexible and inevitable as those which underlie the deliberations of the average adult. If this be untrue, then the greatest proportion of accidental choices should be made by those who are most plastic to environmental influences, who are least able to think—the youngest children. Let us see how this works out.

A careful search for all choices, other than acquaintances, that could by any reasonable effort be construed as due to some temporary interest or accidental occurrence, reveals just fourteen different characters, named by fifty-two girls and twenty-seven boys, or about 3.4% of the total number. Moreover, instead of the greatest percentage of these choices being found among the youngest children, they are among the oldest, as shown in the following table:

PROBABLE ACCIDENTAL CHOICES.

Age	6	7	8	9	10	11	12	13	14	15	16	Total
Girls	4%	6%	6%	1%	1%	2%	4%	11%	12%	10%	19%	4.4%
Boys	0	2	0	1	2	2	2	5	5	4	6	2.3

There is no way of avoiding the conclusion that the tendency toward choosing an ideal determined by temporary interests increases through the adolescent period, and that girls are much more open to accidental suggestions than are boys. Some of the transitory conditions which may have determined some of the choices are the following: For some days before these papers were written all the bill boards of the city had been covered with flaming posters of horses, buffaloes, and Indians, announc-

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ing the coming of Buffalo Bill's Wild West Show. Eleven boys chose Buffalo Bill as their ideal. The newspapers had been devoting their most conspicuous columns to descriptions of the christening of the Kaiser's yacht by Alice Roosevelt. Thirty-four girls, ages eleven to sixteen, named her. Miss Stone's story of her captivity in Macedonia was being published in McClure's Magazine. Five girls desired to be like her. Dr. Brown, a venerable minister had recently died, and his virtues were being much discussed. Fifteen girls and seven boys took him as their model. The circumstances probably suggesting the other choices were of the same general kind as those mentioned.

When we come to study the question, and to consider the susceptibility, even of adults, to the influence of environing conditions, the wonder is not that so many children have their decisions determined by accident or caprice, but rather that so few of them give evidence of haphazard choosing.

To none of the other objections against studies based on papers written by children does this study give any support. That even the youngest school children can express themselves in writing to some extent is shown in the fact that a majority of those as young as five and six years gave some ideal, though, of course, their reasons were crude or wanting. Almost without exception, the papers give evidence that the question was taken seriously by the writers, and that the answers represent their genuine attitude. The influence of suggestion seems to have been eliminated from these papers by the cautions given the teachers in advance, and by the absence of opportunity for conference by the pupils, and their ignorance of the use to be made of their compositions. That their choices are not momentary inspirations or "hit-and-miss" guesses is sufficiently shown by reference to any of the curves or tables in the preceding pages. The steadily rising or falling lines give no evidence of lawless or chaotic minds. Children naturally express what comes to the focus of consciousness or what is ingrained in their nervous systems; and in either case, what is there is there in obedience to some law.

Generalizations and Applications.

It may be well, before concluding our paper, to summarize results. The data brought together in this study seem to justify the following conclusions:

1. There is a place for this study and for many other studies on ideals in all parts of the world. Child study is in the fact-gathering period and only the simplest generalizations are safe.

2. Less than 1% of the children have no ideal. This rep-

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resents the number who regard their own lives and characters as desirable as any one's else.

3. Degrading ideals are almost entirely wanting. When one such is named it is for some quality or power which is not bad in itself.

4. With little children acquaintance ideals are largely in the majority, but give way rapidly to broader ones with advancing years. Girls choose more acquaintance ideals than boys.

5. Historic ideals increase in popularity, up to the age of eleven or twelve and then gradually decline to about 50% of the total number. They are the most popular type of ideals.

6. Contemporary ideals, other than acquaintance, have the most gradual and most unvarying increase in popularity throughout the whole school period. This tendency illustrates the expansion of the social and political consciousness much better than does the preference for historical characters.

7. The children contributing to this investigation show a more rapid expansion from acquaintance to national ideals than those of any other available study, foreign or American.

8. The children of the London studies, both in their larger preference for acquaintance ideals and in their less esteem for historical and contemporary heroes, show themselves less developed at each age than most American children.

9. We are greatly in need of norms or standards, determined by studies carried on under the most advantageous conditions, which shall serve as bases of comparison to determine normality of development.

10. Girls distribute their choices over a greater range of ideals than boys, but have no well defined group of favorite characters.

11. Washington is the great national hero of both sexes, receiving almost as many votes as all other famous characters combined. McKinley, Lincoln, Roosevelt and Longfellow are next in popularity in the order named.

12. It is a serious mistake to thrust national heroes or world heroes upon little children at a time when their interest is centered in their homes and acquaintances. Washington's character has been degraded by such treatment.

13. On the other hand, arrested development ensues if the child still clings to local ideals when his consciousness and personality should be expanding to include more and more of the world at large.

14. Deity and Bible characters occupy a small place among the ideals of American children. In this respect they are greatly inferior to both the English and Scotch children studied. The need for an awakening of Bible study in both home and school seems imperative.

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15. Teachers are not popular as ideals, in spite of the fact that teaching has been proved to be a popular profession. Is it true that teachers are failing to get into their pupils' hearts and become essential parts of their lives?

16. Significant sex differences, dependent on differences of structure and function, appear in the choice of ideals. Girls name a larger proportion of writers, artists, musicians, philanthropists, and literary characters; boys select more soldiers and adventurers, financiers, and inventors.

17. Girls choose more foreign ideals than boys, because those qualities which appeal most to them are best developed abroad.

18. All studies combine to emphasize the appalling extent to which girls emulate male ideals, especially in the adolescent years. There can be no doubt that this tendency has promoted the disintegration of feminine character, and aggravated the excesses of the so-called "emancipation of women." The curricula, the books, and the instruction of our schools must be modified so as to supply a sufficient number of worthy feminine ideals for the girls, and in all places the peculiar womanly and domestic qualities of the sex must receive a more outspoken commendation and encouragement if the sex, and consequently the race, is to be restored to the condition of greatest health and progress.

19. Except in the earlier school years, girls tend more and more to prefer, among the women ideals, those characters which are great by their own merit rather than those who are known through their relationship to great men.

20. Little children give no reason, or at best a very vague one, for their choices. They are not able to analyze situations and in school work should not be required to give explanations or trace causal connections. Any chance associate serves them as a sufficient cause. English children are more primitive in this respect than Americans.

21. Material possessions constitute a very small proportion of children's motives in choosing their ideals, and the tendency so to choose diminishes slightly with age. The importance of wealth is much more marked in choosing a future occupation. There is no sex difference discoverable.

22. Personal appearance, conventional accomplishments, personal liking, and power to do some particular thing, seldom appear among children's justifications of their choices.

23. Moral qualities, honor, position, civic virtues, and altruistic ministrations are characteristics named by both sexes in ratios generally increasing with age The girls lead in moral and altruistic qualities, the boys in the others.

24. Military motives are given almost without exception

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by the boys alone and characterize almost one-fifth of their ideals. As a peace-loving nation we are under obligation to place more emphasis on statesmanship and the less showy civic virtues in the historical instruction of our boys.

25. Lincoln is the favorite embodiment of political and patriotic qualities with both sexes.

26. Intellectual and artistic qualities do not hold a conspicuous place in children's consciousness, although they are much more appreciated by girls than by boys. No doubt their association with school work, examinations, grades, and report cards makes these attributes of culture relatively unpopular. The school owes it to civilization and refinement to rescue these qualities from their position of insignificance in the scale of values of children's minds.

27. Young children tend to project themselves into any suggested or remembered situation and to actually live it. This characteristic furnishes justification for the dramatizing of songs, and stories in primary grades, for the occupations and games of the kindergarten, and suggests that most of the reading material for little ones should be written in the first person.

28. Children are much less influenced in their choice of ideals than is popularly supposed. Their choices seem to come from the real fibers of their nature as genuinely as do those of adults.

In conclusion, the writer desires to express his obligation to the superintendent and teachers of the public schools of New Castle, Pennsylvania, for furnishing the papers used in this study, and especially to his wife, Sunshine Foulke Chambers, who patiently bore a large part of the tedious work of classification and tabulation, and by suggestions and direct contribution added much to the value of the research.

BIBLIOGRAPHY.

I. Papers bearing directly on this study.

1. A Study of Children's Ideals, by ESTELLE M. DARRAH; Popular Science Monthly, May, 1898, Vol. 53, pp. 88-98.
This is the pioneer study on this topic, the first of scientific value, and it has marked out the lines on which practically all subsequent studies have been conducted. It is based on papers from 1,440 school children from San Mateo County, California, and St. Paul, Minnesota. While gathered from such diverse sources, the data are quite homogeneous except as to the choice of Deity as an ideal, in which the Minnesota children outnumber the Californians 73 to 4. Illustrated by diagrams.

2. Children's Ideals, by EARL BARNES; *Pedagogical Seminary*, April, 1900, Vol. 7, pp. 3-12.
This investigation is based on replies of 2,100 children of the London Board Schools to the same question used by Miss

Darrah, "What person of whom you have ever heard or read would you most wish to be like? Why?" It is of interest to American students for two reasons: first, because it gives a glimpse of the range of ideals aspired to by English children of the lower social strata; and second, because it points out resemblances and differences between their ideals and those of American children as revealed in Miss Darrah's study. A concise summary of conclusions and a suggestive discussion of pedagogical applications conclude the paper.

3. School Children's Ideals, by CATHERINE I. DODD; (a) National Review (London), February, 1900, Vol. 24, pp. 875-889. (b) Also reprinted in the Pennsylvania School Journal, July, 1900, Vol. 49, pp. 7-15.

An English study more valuable for its qualitative than its quantitative results. Its conclusions are drawn from papers written by less than 700 children in the public elementary schools of England, and seem somewhat colored by the author's personal convictions. Some interesting results are added by her having prefixed a question to that used by Professor Barnes and Miss Darrah, viz.: "Which would you rather be when you are grown up, a man or a woman, and why?" The inferiority of woman's position is strongly reflected in the answers of both boys and girls. Drunkenness is much more frequently referred to than in any kindred American study, as is also brutality to women and children. Much is made of the unusual replies while the value in the commonplace ones is overlooked. The conclusions are few and some far-fetched. The limited range of age—eleven to thirteen—of the children contributing is an additional defect of this study.

4. Report on "Children's Ideals" Test, by A. YOUNG, Esq. An unpublished collection of diagrams and explanatory notes in the possession of Professor Earl Barnes. A brief account of the same study was published in the Practical Teacher (London) about 1900.

The study grows out of the examination of the answers of 2,500 children, varying in age from eight to fourteen, in Scottish schools, to the question, "What person of whom you have heard or read would you most wish to resemble?" The more general conclusions of the other studies are confirmed, the Scottish children are shown to be more advanced in certain lines of growth than either American or English children, and several racial characteristics stand out in bold relief. The prominence of Deity among the ideals is quite unusual.

5. Children's Ideals, by ADELAIDE E. WYKOFF; *Pedagogical Seminary*, December, 1901, Vol. 8, pp. 482-494.

This paper might more properly have been entitled "Children's Vocational Ambitions," as it is an investigation of what children hope to be when grown up. It covers a geographical area different from any other study on the subject, being based on papers written by over 1,000 children of Brooklyn, Long Branch, N. J., and Melrose, Mass. President Hall speaks of the paper editorially as "confessedly limited in its scope and chiefly suggestive in its value."

6. A Type Study on Ideals, by EARL BARNES; Studies in Education, Vol. 2. (Published by the author at 4401 Sansom Street, Philadelphia.)

This is an admirable series of papers intended, as the title suggests, as a model to be used by teachers and others in pursuing similar investigations. The returns from 1,900 children,—1,200

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boys and 700 girls,—in several New Jersey towns are worked up in detail, in order to show the method of work, and presented in nine brief chapters in successive numbers of the volume. Numerous tables are inserted, and the generalizations and applications, are, as usual, good. Unquestionably, it is the most complete and helpful study on the subject yet published. The minuteness with which details are worked out makes it a very useful model for those to follow who are unskilled in the technique of quantitative studies.

7. Negative Ideals, by HENRY H. GODDARD; Barnes's Studies in Education, Vol. 2, pp. 392-398.
This investigation constitutes a fitting conclusion to Barnes's series of papers just described (No. 6). It is an attempt to discover what kinds of individuals stand out in children's consciousness as characters to be shunned, and to what extent such negative ideals enter into character-building. The study was confined to students of normal school age and does not, therefore, give any generalizations for ages below fifteen. It is a very suggestive paper and raises some important questions.

II. Papers indirectly related to this study.

8. The Development of Children's Political Ideas, by EARL BARNES; Studies in Education, Vol. 2, pp. 5-24.
An excellent paper on the political ideas of English children, drawn from the papers of 122 boys and 595 girls who named Queen Victoria as their ideal, out of a total of 5,000 papers in the general study on ideals. The elements of character in great people which appeal to English children are well illustrated.

9. Political Ideas of American Children, by EARL BARNES; Studies in Education, Vol, 2, pp. 25-30.
A parallel study to No. 8, founded on answers of 1,800 children of New Jersey and Long Island to the question, asked soon after the president's assassination, "Would you wish to be like Mr. McKinley? Why?" The differences in the political notions of English and American children are interestingly shown.

10. Children's Hopes, by J. P. TAYLOR; Annual Report of the Superintendent of Public Instruction for New York, 1895-96.
A study of 2,000 papers written by children on "What I want to do when I'm a man (or woman) and why." This paper has not been accessible to the writer, but Professor Barnes says of it: Mr. Taylor used a cumbersome system of classification but his conclusions as to the effect of parents' occupation upon the child's choice, the growth of altruism, the growth of moral consideration and the general characteristics of the children's papers at successive ages, give the paper permanent value.

11. What Children Want to do when They are Men and Women, by CHARLES H. THURBER; Transactions of the Illinois Society for Child Study, Vol. 2, pp. 41-46.
This is a somewhat incomplete summary of the results of Mr. Taylor's study just referred to (No. 10).

12. Children's Ambitions, HATTIE MASON WILLARD; Barnes's Studies in Education, Vol. 1, pp. 243-253.
A brief study reaching the usual commonplace conclusions of other studies on the subject of future occupation.

13. A Study in Children's Social Environment, by SARAH A. YOUNG; Barnes's Studies in Education, Vol. 2, pp. 123-140.
Based on replies of 1,150 English children to the questions: If you could have just what you would like, what would you

choose; and if you could do what you liked best, what would you do? Particularly good on motives which underlie English children's ambitions.

14. Children's Ideas of Lady and Gentleman, by ANNA KÖHLER BARNES; Barnes's Studies in Education, Vol. 2, pp. 141-150.
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15. Children's Ambitions, by JOHN I. JEGI; Transactions of the Illinois Society for Child Study, October, 1898, Vol. 3, pp. 131-144.
An investigation of the vocational interests of the German children of Milwaukee. Only 400 papers—200 of each sex—were used in this study. Accompanied by a number of diagrams.

16. A Study of Children's Hopes, by S. B. HOUSH; Child Study Monthly, February, 1896. Based on only 450 papers written on the topic "What I want to do when I am a Man (or Woman) and why?"
A few commonplace and somewhat disjointed conclusions are arrived at. It is of but slight permanent value.

17. Children's Attitude toward Future Occupation, by EARL BARNES; Studies in Education, Vol. 2, pp. 243-258.
Another English study generalized from returns of 1,000 boys and 1,360 girls in the London Board Schools. Comparison is made, so far as varying classification will permit, with other existing studies.

18. School Girls' Ideas of Women's Occupations, by SARAH YOUNG; Barnes's Studies in Education, Vol. 2, pp. 259-270.
A study of limited value to American students because reflecting the attitude of a single social class of London elementary school children, and because it is limited to the ages of eleven to fourteen, and to opinions regarding only five specified vocations.

19. What 100 Girls Would Like to Be, by HELEN HAMILTON; Ladies' Home Journal, January, 1903, pp. 3, 4.
A brief popular study of doubtful scientific value, being quotations from the letters of 100 college girls written in reply to the two questions: "Would you prefer to be a man or a woman?" and "What is your highest ambition to be as a woman?"

20. Vocational Interests of Children, by WILL S. MONROE; Education, January, 1898.

21. Children's Ambitions, by WILL S. MONROE; New England Journal of Education, June 18, 1896.
These last two articles have not been accessible to the writer during the progress of this study, and are not, therefore, characterized.

22. What One Teacher can Do, by FRANK K. WALTER; Pennsylvania School Journal, September, 1902, Vol. 51, pp. 110-113.
This is a paper prepared for the Child Study Department of the Pennsylvania State Educational Association, a part of which is devoted to a study of children's ideals. It is based on only 741 papers gathered from scattered Pennsylvania schools. No new principles are discovered, and the conclusions are few. The paper has slight permanent value except as showing that such studies are practicable for ordinary teachers.

23. Die Ideale der Kinder, JOHANN FRIEDRICH; Zeit. f. Päd. Psy., February, 1901, Vol. 3, pp. 38-64.
This study came to the writer's notice too late to be included in the summarized results of the present paper.

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TONE PERCEPTION AND MUSIC INTEREST OF YOUNG CHILDREN.

By WILL S. MONROE,
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It is well known that children learn to distinguish sounds very early and that they learn to sing before they learn to talk. Rhythmic measures and movements of tonal sorts very early cause pleasurable and painful reactions. Preyer notes that his child manifested pleasure in music even in the first three months and that this pleasure increased manifestly in the six following months. He cites the instance of a little girl, who, in her ninth month could sing correctly every note given her from the piano, and who found discords so unpleasant that she wept bitterly whenever any one blew on a small tin trumpet.[1] Young children will give to musical sounds degrees of sustained attention altogether out of proportion to the normal control of their activities. This manifest ability to distinguish not only pitch but the stress and shade of tones has been explained (1) by the fact that particular tones correspond to certain conformations in the child's acoustic apparatus and (2) by virtue of certain hereditary predispositions.

In connection with studies of young children made by my students, I have been able to collect facts from 161 children under six years of age along the following lines:

1. Ability to learn the scale.
2. Ability to remember the scale.
3. Ability to learn and remember rote-songs.
4. Interest in music.

The children were all Americans by birth, although one or both parents in eleven instances were foreign born. Thirty-eight of the children were between the ages of two and three years; sixty-four, between the ages of three and four; forty-six, between the ages of four and five; and twelve over five but under six years. Of the 161 children, 69 were boys and 92 were girls.

Ability to learn the scale was least from two to three years. At that age, 29% of the boys and 49% of the girls could be taught to sing the scale; from three to four years, 31% of the boys and 54% of the girls; from four to five years, 34% of the

[1]Preyer: The Senses and the Will. Translated by H. W. Brown, New York, 1888.

boys and 59% of the girls; and from five to six years, 40% of the boys and 71% of the girls. Taking the boys at the different ages, 34% are able to learn and sing the scale, whereas 58% of the girls possess this ability. The boys begin at two years with 29% and end at six with 41%. The girls begin at two with 49% and end at six with 71%. A number of children could learn a portion of the scale only—the first three, four, or five notes; and in two instances the first seven notes could be learned, but the whole scale could not be learned. Tonal difficulties were always greatest with the upper notes of the scale. Three children—two boys and a girl—could perceive the notes of the scale and name them when sounded, but could not learn to sing them; and a girl of five years could be taught to recognize the first five notes of the scale, but she could not be taught to perceive tones beyond G.

A fortnight later, with three intervening reviews, the children were again asked to sing the scale to test their ability to remember it. In the first group (two to three years), 19% of the boys and 23% of the girls were able to reproduce it correctly; in the second group (three to four years), 27% of the boys and 33% of the girls; in the third group (four to five years), 29% of the boys and 45% of the girls; and in the fourth, group (five to six years), 40% of the boys and 57% of the girls. The average for the boys is 29% and for the girls 40%. The boys, it will be noted, have dropped but 5%, whereas the girls have dropped 18%.

The children were taught simple songs of the kindergarten type, and a fortnight later they were asked to reproduce these songs. In the first group of children (ages two to three), the songs were remembered by 43% of the boys and 59% of the girls; in the second group by 50% of the boys and 61% of the girls; in the third group by 47% of the boys and 62% of the girls, and in the fourth, or oldest, group of the children by 60% of the boys and 71% of the girls. As will be seen, the songs were remembered by 50% of the boys and 63% of the girls. The greater power of memory of songs over the scale is due to two factors: (1) Children are much influenced by the movement of a song and an appreciation of rhythm of simple or complicated arrangements of notes within the bars, based on two or a multiple of two; and (2) by associations with concrete realities. Songs, for example, about pansies and pussy willows and song sparrows attached themselves to pleasurable experiences and were more easily retained and more readily recalled than the scale.

The fourth rubric—fondness for music—furnishes, necessarily, more vague returns than the other rubrics of the test, since the student formed her judgment from the musical reactions of

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the child and conversations with the parents concerning the child's musical interests and instincts. In the first group (two to three years), 33% of the boys and 53% of the girls are reported fond of music; in the second group, 31% of the boys and 61% of the girls; in the third group, 23% of the boys and 65% of the girls, and in the oldest group (five to six years), 20% of the boys and 57% of the girls. Of the 69 boys, 27% are reported fond of music and of the 92 girls, 59% are supposed to have special tastes in that direction. A fact of no small interest is the drop in the male curve as the boys grow older. The curve of the girls in this test rises—excepting the last group; and the curves of both boys and girls in the other three tests rise with advance in years.

The study suggests some interesting sex differences in musical abilities and interests of young boys and girls, the girls throughout taking higher rank for tonal excellence than the boys. It is well known that auditory defects are more common among males than among females. Among adults, Zufal in Germany found 60% of the deafness among men and 40% among women. In France, D'Espine reports 61% of the deafness among men and 39% among women.[1] There are nearly ten thousand children attending public and private schools for the deaf in the United States; and of this number, more than 55% are boys and less than 45% are girls.

According to researches made by Jastrow and Morehouse on the students of the University of Wisconsin,[2] the hearing of women students is decidedly more acute than that of men. They placed their subjects twenty-five feet from a glass plate upon which was dropped a shot weighing ten milligrams, and the distance it had to fall to be heard by the two sexes was 17 and 35 millimeters respectively.

Musical interests, in America at least, are sustained largely by women. They form the bulk of the patronage at our concerts, recitals, and operas; and musical directors find it possible to get two female choristers for every one male. All this evidence points to manifest feminine superiority in tone perception and music interest; yet the fact is a matter of record that women have never achieved distinction as musical composers or interpreters. Not only the creative but all the higher phases of tonal art have always been monopolized by men; and the conclusion is suggestive of the fact that a process of natural selection takes place from the earliest years of infancy. And the keener tone perceptions and wider musical interests of these young girls, after all, seem to have little more of promise for the future than mediocrity, both in creation and interpretation of tonal art.

[1]Gellé: Précis des maladies de l'oreille. Paris, 1885.
[2]*American Journal of Psychology*, April, 1892, Vol. IV, p. 424.

LITERATURE.

The Story of My Life, by HELEN KELLER. Doubleday, Page and Co., New York, 1903. pp. 441.

This book is in three parts. The first, 140 pages, is Miss Keller's own story of her life down to her third year in Radcliffe. The second, to page 283, is made up of her letters from the earliest and most imperfect down to November, 1901. These are in large type. The third part, in small type, consists of five supplementary chapters entitled, the writing of the book, personality, education, speech and literary style, and is edited by Mr. Macy, but is mostly made up of Miss Sullivan's letters and diary, with a few additional extracts from Miss Keller's writings.

Helen Keller was born in 1880. She became entirely blind and deaf at the age of nineteen months, before which time she had learned a number of words and had the usual experiences of her age in acquiring a knowledge of the external world. Miss Sullivan, who had herself been blind and was educated at the Perkins Institution, inspired by the example of Dr. Howe's work upon Laura Bridgman, came to Helen in 1887 when she was six and three-fourths years old. She found her an exceedingly active child with a very violent temper, with outbursts sometimes daily and almost hourly, caused largely because she could not understand or make others understand. During the first days or even weeks, there were severe and sometimes physical tussles between teacher and pupil, which evidently at the time put considerable strain upon the relations of the former with the family who had been exceedingly indulgent. At first Helen was taught to spell a very few words like doll and cup with the deaf mute language. Finally at a definite date, April 5, 1887, the child seemed to catch the idea that everything had a name and learned thirty words in one hour. April 24th, her vocabulary was one hundred words; May 22nd, three hundred; September, six hundred; and in March of the next year, she knew nine hundred. As words were learned, the signs, some sixty of which she had devised, fell off. One evening at a hotel she is said to have learned twenty new names of persons, all of which she remembered the next day, long words, having apparently a little more individuality, being easiest for her. Very great ingenuity was required to teach the meaning of such words as in, on, large, small, fast, slow, love, think, etc.

As rapport between herself and the external world was established, her temper grew rapidly sweet. Helen's activity brought her in contact with a vast variety of objects and she was encouraged to swim, slide in the snow after she came north, to climb trees, to touch everything possible,—Miss Sullivan, *e. g.*, holding pigs, crabs and poultry that she might feel them all over. For every new thing, she wanted a new name. Miss Sullivan sought to train her exactly as normal persons are trained, and her success long ago distanced that of Dr. Howe with his famous pupil. Only in reading this book can one realize the extreme sagacity, sound sense and devotion of Miss Sullivan, which appears to be fully appreciated by her pupil to whom she has almost given a soul. Her teacher for a long time did not believe in regular hours, but taught upon the moment whenever anything was

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needed or became interesting, and has a just horror, as has her pupil, of all cram, form, methodology, and book work where direct contact with things is possible.

On the other hand, her pupil is no less a marvel and must be considered as an entirely exceptional being, with nothing less than genius for language. Although her life is largely confined to touch and movement, she has developed, especially in the latter, powers unparalleled in the known history of the race. These limitations make her knowledge more real and her language more literal, and perhaps her feelings more vital. The story and personages of Homer, the blind poet, thrill her soul and make her interest breathless. The tale of the extinct geologic animals haunts her dreams. Historical characters are almost as real to her as persons she knows. I know no record of any life where the topics of high school and college have produced such vivid and sympathetic reactions of interest. The saddest thing in the book, next to the bereavement of this wonder child, are the signs of disenchantment with college work, with the frippery of notes and the study of words, mechanical methods, etc. She writes, "it seems to me that there is in each of us a capacity to comprehend the impressions and emotions, which have been experienced by mankind from the beginning." She must herself have a subconscious memory of the world of sight and hearing, for experiences of the race must be dormant in every one, and language in her case brings it out.

Religious questions seem to have come to her naturally in the early teens or before, but her mind was kept in a virginal state until the remarkable letters and interviews with Phillips Brooks introduced her to the natural, universal religion of love of God and to the race. She has enjoyed the acquaintance of Holmes, Whittier, Edward Everett Hale, Mark Twain, Joe Jefferson, Alexander Graham Bell, and very many others, who have taken an interest in her and enriched her life with both suggestions and memories. That Miss Keller, now at the age of twenty-three, has real literary power is certainly suggested by her own letters and autobiography. There are plenty of suggestions that much that she says is a little unreal, but much is more real than with others.

She greatly enjoys the theater and, with Miss Sullivan to explain what is going on, seems to get as much satisfaction from it as others. Jefferson has acted some of the scenes from Rip for her benefit, while she felt his mouth and attitudes. She even takes pleasure in music, although it is only a series of jars, loves moonlight, and appreciates the difference between the quiet of the night and the garish day perhaps as much as others. Perhaps language means more to her because so much of her life goes out in it. She certainly takes great pleasure in knowing and reading things, which must be beyond her experience. She knows comparatively little of evil; perhaps a purer soul does not exist. It would seem that the great passion of her life has been to know what others know, to test herself by other girls, to feel the sympathy of friends and communion of thoughts. Every study she has undertaken has had special obstacles, which she has had to overcome, sometimes with very great ingenuity and by tedious long circuits and oppressive handicaps. One trembles to think what would become of this beautiful soul if, after sixteen years of incessant intercourse, Miss Sullivan, who almost began where Dr. Howe left off, should be taken away. She has studied hard up the high school and college grades to be useful to her pupil. Sometimes Helen seeks to assert her independence, but these efforts seem almost pathetic. Both owe their fame and their genius to the other, without whom neither would ever have been heard of.

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To The Frost King episode, where Helen told a story after a long interval, which was written by another near the time of her birth, which she reproduced in outline and occasionally in phraseology and which was given to the world thinking it her own, we attach little importance. That the mistake was not only possible, but for one in her condition natural, every psychologist will readily understand. That the cruel charge of plagiarism, of posing in borrowed plumes for effect, should have darkened a portion of her life and haunted her mind and that of Miss Sullivan ever since with the question whether every new thing she says was remembered or created is unfortunate.

As a pedagogical achievement, the facts contained in this book will always stand out as monumental. It is easy in the light of past experience to wish that many things had been otherwise. It is doubtful if any scientific psychologist, although devoting himself with the same assiduity to the same work, could have achieved results equal to what this woman's tact has accomplished. The world was long since interested and will follow developments in the future with growing zest. We hope that this comprehensive work does not imply a sense on the part of any of those concerned in its authorship that the high water mark has been reached, and that further developments are not to be expected.

The Making of Citizens. A Study in Comparative Education. R. E. HUGHES, M. A. (Oxon), B. Sc. (Lond.) Scott Pub. Co., London and Newcastle-on-Tyne, 1902. With table appended, summarizing the laws relating to school boards in various cities.

This book is a review of the systems of education in England, Germany, and America. The author takes the ground that each system is adapted to the idiosyncrasies of the people who support it. Its object is to make citizens. "Anarchists must be born; they cannot be made under existing conditions." The introduction of the factory system, which in so many cases takes the parents away from the children, makes it all the more important that the State should care for the education of the youth. How this is done is shown in the several chapters, first on primary and finally on secondary education in these four nations. In each chapter are given valuable tables of statistics concerning finances, child labor, etc. Further there is detailed information concerning teachers and their qualifications, curricula, school laws, and administration. In England is a rapidly increasing number of women teachers in the primary schools and these are of diverse qualifications. In German schools of the same grade the teaching force is better equipped; the best minds are attracted thereto by the pension system. In France the system is making citizens but not strong independent character. The teachers are inferior, but, unlike the Germans, they are ready for new methods. In the U. S., owing to overcrowding, thousands are without school advantages. As in England, the teachers are of various classes in respect to preparation. English and American schools are individualistic; French and German schools, socialistic. In France and Germany the teaching force is a closed corporation; the only access to it is by way of definite preparation. In England and America, there is greater freedom in this regard. Here both teachers and schools are in direct contact with the public.

The author now passes to a discussion of the secondary schools systems. In France the system is exclusive and produces automata. In Germany all classes are provided for, but social cleavage is perpetuated. In America the system varies with the locality, and in England there are several classes of secondary schools.

Following this are two chapters, one on the education of girls, the

other on the training of defectives. In the conclusion he says that each system is indigenous and is doing the work required of it. We cannot compare systems. There is a progress toward social equality of the sexes which is commendable. More doubtful is the tendency to hand over the education of the youth to women. The tendency in the U. S., is toward science and manual training. This is democratic but not desirable in the extreme. The solidarity of education must be recognized. Inorganic nature and organic, the humanities, history and æsthetics must be taught in every grade, the future will be less concerned with instruction than with education, that the man may be wholly furnished for life.

If any adverse criticism to such a work is pertinent, it is this:—the time table of the gymnasium showing the essential characteristics of the German Secondary schools is not based on the recent official action. For the correction of this, however, reference is made in a footnote to Eng. Special Reports, Vol. IX, p. 175. ROBT. H. GAULT.

CUBBERLEY, ELLWOOD P. *Syllabus of Lectures on the History of Education with Selected Bibliographies.* Macmillan & Co., New York, 1902. pp. 302.

This syllabus, the author tells us, has been "used during the past three years with a class in the history of education." It is published in its revised form as a guide to librarians, teachers and individual students. The outlines given here seem to the reviewer of much less value than the bibliographies. The latter cover very well the wide field of the history of education from ancient peoples to the present time. The best of the important literature dealing directly with education is usually included in these lists, but most of the references are very defective. The date, place of publication, and the number of pages is usually omitted in the case of books; and in the case of articles or essays contained in other works this fact is not always mentioned. These defects detract very greatly from the value of this important contribution to educational history.

The author's aim is high. "An attempt has been made," he says in his preface, "to study the history of education as a phase of the history of civilization. Accordingly a close connection has been maintained between the history of the civilization of a people and the ideas on and progress of education among them. Significant political events, changes in religious ideas, the attitude of the leaders toward the great problems, the progress of scientific discovery and invention, and the rise and progress of the scientific method and national spirit have been considered as a background for the study of the history of educational theories and practice." From this wider point of view many other books should be included in the bibliographies; and a general index of authors would add greatly to the value of the whole.

W. H. B.

Genetic Psychology for Teachers, by CHARLES H. JUDD. D. Appleton and Co., New York, 1903. pp. 329.

The title of this book is misleading. We expected something on the development stages of the mind, but find that the term here means introspection. The author appears to know little or nothing of the study of childhood, but his basal principle is that the teacher must first study his own mental processes before he can study children. He does intimate that child study is of little value and almost "wholly worthless" to the teacher, and must remain so until they can introspect. The best parts of the book are the author's own study of optical illusions, with many cuts, the pedagogical value of which is not apparent, and his two long chapters on the mechanics of

reading and writing. The style of the work is extremely diluted, often gossipy, implying a low idea of the intelligence of teachers. A few years of incubation might have resulted in an interesting development of his thesis. Compared with David J. Hill's Genetic Philosophy, published in 1893, which is true to its title, this work is essentially based upon an epistemological abstraction, and the disparagement of child study which recurs in its pages appears to be a local or provincial prejudice.

The Making of our Middle Schools. An account of the development of secondary education in the United States, by ELMER E. BROWN. Longmans, Green and Co., New York, 1903. pp. 547.

The strong point of this book, as well as by far the chief space, is, of course, the historical chapters. The writer is in every way well prepared for this work and has had access to all the sources in the East. Of course, every intelligent reader will find in such a work omissions of points that he would like to see included, but the historical part of the book is a very distinct addition to the literature upon secondary education, indeed, far and away the best in its field. If we were to consider the author's standpoints on secondary questions as represented in his concluding chapter, entitled The Outlook, the verdict would have to be far otherwise. The standpoint is, on the whole, that of great conservatism and caution, which is well, but also written under the profound dominance of university standpoints and interests. This is apparent despite the very general, measured, and over qualified phraseology. A very valuable bibliography, with descriptive notes concerning many more important works, and an excellent index are appended. The author shows himself essentially an historian.

Hearing on the Bill (H. R., 14,798) to Establish a Laboratory for the Study of the Criminal, Pauper, and Defective Classes, with a Bibliography, by ARTHUR MACDONALD. Govt. Print, Washington, 1902. pp. 309.

This hearing contains a number of interesting additions to Dr. MacDonald's work. Half of it is a bibliography. The author has certainly shown amazing industry both in the collections of literature, of facts, and of table-making. He has also pushed his work of propaganda with very great vigor. Whatever may be said in general of the man and his work, there is much sympathy with him in his loss of opportunity to push on into better and larger fields. Without pronouncing an opinion upon the bureau which he sought to establish in Washington, many regret the course of Dr. Harris and think it somewhat strange that he should have been a decade or more in finding out that he did not desire to encourage either Dr. MacDonald or his work.

A Plea for a National Institute of Geography, by J. G. BARTHOLOMEW. With plan and note by Professor Geddes. Reprinted from The Scottish Geographical Magazine for March and April, 1902.

We have here at last a suggestive plan for a National Institute of Geography based upon Professor Geddes's ideas. There are two domes, each containing an eighty foot globe, one of the earth and another of the heavens, separated by a high outlook tower, and at the extreme ends are a semicircular lecture theater and congress hall and a panorama representing typical scenery of all countries. Front and back of the globe rooms are rows of library rooms devoted to maps, books, models, and pictures of the various departments of the science of geography. It is greatly to be hoped that Professor Geddes's plan may be realized.

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The University Courier. Devoted to the interests of the American University and Higher Education. Washington, D. C., December, 1902.

The institution this publication represents is steadily developing and is certain to be a very welcome addition to our higher institutions of learning. Bishop McCabe has succeeded, at least temporarily, to the presidency during the illness of Bishop Hearst. If President Harper is right in his reported statement, "give me one million dollars and I will make here a better university than can be done in Chicago with ten million dollars," the advantage of the situation at Washington, where the government has expended some fifty million dollars in scientific and literary collections, is immense. It is strange that some millionaire does not come to the relief of this institution after its ten years of diligent and progressive efforts to secure adequate endowment.

Indian Story and Song from North America, by ALICE C. FLETCHER. Small, Maynard and Co., Boston, 1900. pp. 126.

The songs, the author prints here are, as she says, "like the wild flowers that have not yet come under the transforming hand of the gardener." Both the stories and songs are here published for the first time and have been directly gathered from people in their homes. It is interesting to know that Arthur Farwell and others have harmonized some of these songs printed by the Wa-wan Press at Newton Centre, Massachusetts, and that, while these melodies can hardly await such development as the Hungarian, Russian and other national melodies have had, they certainly bring out new and very interesting ethnic elements which are valuable as suggestions.

The Method of Recitation, by CHARLES A. and FRANK M. MCMURRY. The Macmillan Co., New York, 1903. pp. 339.

This book has sprung out of the authors' experience in schoolroom work, which he has supplemented by an effort to develop and bring together various principles which control skillful teaching. Like all the other works of the author, it is largely based upon the principles of teaching of Herbart, Ziller and Rein. It is really part two of the broad subject of method, the first part of which, General Methods, has already appeared. This edition is rather radically revised. It consists largely of the general and rather abstract principles stated and then illustrated in a concrete way.

Co-education. A series of essays by various authors. Edited by Alice Woods. With an introduction by M. E. Sadler. Longmans, Green and Co., London, 1903. pp. 148.

We have here nine very interesting papers on this subject from different standpoints by men, some of whom are widely known, like Arthur Sidgwick and Cecil Grant. All favor co-education, although some in more and some in less degree, and all have had experience with it. Sadler frankly states that he is not yet entirely convinced and believes that "to be educated in common with boys throughout the latter part of her secondary school career would not be the best kind of training for a girl, although some girls seem by nature more fitted for a boy's training and a man's career than others."

Epoch-Making Papers in United States History. Edited by Marshall S. Brown. The Macmillan Co., New York, 1903. pp. 207. Price, 25 cents.

Twelve precious texts from the Declaration of Independence to Lincoln's Gettysburg speech, with notes, introduction, etc.

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A Manual for Physical Measurements for use in normal schools, public and preparatory schools, boys' clubs, girls' clubs, and Young Men's Christian Associations, with anthropometric tables for each height of each age and sex from five to twenty years, and vitality coefficients, by WILLIAM W. HASTINGS. Springfield, Mass., 1902. pp. 112. Price, $2, and $2.50.

This manual treats of the methods of physical examination and computation of results for large numbers of children. The primary object of both manuals and tables is the propaganda of physical training, showing normal standards, determining vitality, etc. On the whole, the work in its field is without doubt the best and fullest that we now possess and should be in every normal and high school and at hand in every gymnasium.

New York Supreme Court. Appellate Division. First Department. Louis Goldstein, an infant, respondent, vs. New York University, appellant. Opinion of the Court. November, 1902. pp. 7.

This is a unique case of a law school student named Goldstein, expelled by the faculty on the accusation of annoying a young woman in his class by writing her requesting her acquaintance. This letter he was said to have given to another person to hand to the young woman. He denied the whole matter and obtained an injunction forbidding the faculty to interfere with the right to attend the lectures of the school.

Cap and Gown. Selected by R. L. Paget. L. C. Page and Co., Boston, 1903. pp. 331.

This is the third volume of verses collected from college journals. They are all short, and some of them are really brilliant. The prevailing theme is the other sex. Humor and wit are perhaps the next most important note. A very favorite device is the expression of real sentiment disguising itself by ending in conscious bathos, a typical form of expressing the self consciousness and sense of defective form which often underlies these effusions.

The Theory of Education in Plato's "Republic," by JOHN E. ADAMSON. The Macmillan Co., New York, 1903. pp. 258. Price, $1.10.

This is a very valuable presentation of Plato's educational ideas arranged in a more modern order,—the substance of literature, stories of divine beings, courage, truth and temperance. Under the forms of literature, the dangers of imitation, melody and rhythm are discussed; then follow the environment and end of a musical education, gymnastics and physical education, education the first condition of the welfare of the State, primary and higher education, etc.

America in its Relations to the Great Epochs of History, by WILLIAM JUSTIN MANN. Little, Brown and Co., Boston, 1902. pp. 315.

The author has here printed five of his lectures, each considerably expanded, and has made of them an interesting volume. The subjects treated are—the romance of the new world, homes in the new world, the Federal Convention and adoption of the Constitution, America as a formative force in history, and correlations. The author has an easy and attractive style, and both shows and kindles interest in his subject.

Corneille and the Spanish Drama, by J. B. SEGALL. The Columbia University Press; The Macmillan Co., New York, 1902. pp. 147.

The early Spanish Influences and plays are traced in an interesting way, the Cid and the Menteur being especially dwelt upon.

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Experimentelle Didaktik. Ihre Grundlegung mit besonderer Rücksicht auf Muskelsinn, Wille und Tat, von W. A. LAY. O. Nemnich, Wiesbaden, 1903. pp. 595.

The author well assumes that education is the most difficult of all human problems. It is the first comparative treatment we have yet had of motor education, with due recognition of the contributions of modern psychology, child study, and pedagogical pathology. It is a valuable, solid work, taking special account of everything experimental, and it is a pity that its size precludes translation into English.

Greater Russia. The Continental Empire of the Old World, by WIRT GERRARE. The Macmillan Co., New York, 1903. pp. 337.

This is a book combining in a rare degree the interest of a narrative of personal adventure and objective descriptions. It is copiously illustrated, and describes in a fascinating way young Russia as a new America, the Siberian railroad, the Siberians, mines, markets, plains, the yellow danger, the author's passage through Manchuria in disguise, with conclusions upon Russia's manifest destiny.

The Paidologist. The Organ of the British Child-Study Association. Vol. No. I, February, 1903. Cheltenham, England.

This journal still retains its interest. Langdon-Down makes a valuable contribution on neurotic children; J. O. Bevan on ambi-dexterity; S. Levinstein on children's stories; W. Permewan on the waste of intelligence in the young; W. B. Drummond discusses child study; A. Stookes, some educational problems. It is an unusually rich and varied number, both in its literary digests and in its original contributions.

Official Report of the Nature-Study Exhibition and Conferences Held in the Royal Botanic Society's Gardens, Regent's Park, London, July 23rd to August 5th, 1902. Blackie and Son, London, 1903. pp. 307.

Five conferences are reported, including many addresses from eminent men. A few of those that especially strike our eye are—the seasonal study of natural history, trees as means of nature study, nature study in colleges and high schools, plant life, school gardens, nature study as an element of culture. This work comes at a very opportune moment for American teachers.

The Story of the Greatest Nations from the Dawn of History to the Twentieth Century, by EDWARD S. ELLIS and CHARLES F. HORNE. Parts 45 to 56, inclusive. Price, 25 cents each. F. R. Niglutsch, New York.

We have often noticed the earlier parts of this publication, which now reaches the 1344 page, and is still incomplete. Every one of these pamphlets contains about a dozen full page photographs, where possible, from standard artists. This renders the work of very great and peculiar interest. It is something which should be in every school.

A New Student's Atlas of English History, by EMIL REICH. Macmillan and Co., London, 1903. Price, $3.25.

We have here fifty-five full page maps illustrating about everything that can well be put upon a smooth surface of two dimensions, aided by colors. About a page of history is given on the opposite page to illustrate each map. It is difficult to praise too heartily such a careful piece of work, which should be accessible not only to every expert, but to every college and high school student.

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The Child Mind, by RALPH H. BRETHERTON. John Lane, London, 1903. pp. 229.

This book belongs to an interesting new class of child literature, which has already a number of representations. It describes from the supposed standpoint of the child typical experiences of going to bed, the nursery, illness, Sunday, the sea, contact with other children, the weather, dance, etc. It probably errs in making these experiences more intense and vivid and especially more agonizing than they are in fact.

The Nonsense Anthology, collected by Carolyn Wells. Charles Scribner's Sons, New York, 1902. pp. 289.

This collection is very well made. Beginning with Mr. Carroll's Jabberwocky, it illustrates admirably the power of sheer nonsense to please and excite interest. Words invented out of nothing, some of which have even come into general use and into our dictionaries, have a strange resonance in the soul. Such material really opens a chapter in æsthetics, which yet has to be adequately worked.

A Geography and Atlas of Protestant Missions. Their environment, forces, distribution, methods, problems, results and prospects at the opening of the twentieth century, by HARLAN P. BEACH. Vol. II. Statistics and Atlas. New York, 1903.

This long expected and long delayed work is a monument to the industry and devotion of its author. Every Protestant mission in the world can be located and a good deal told about it by the use of a very interesting key in the eighteen large, double page, colored maps, which constitute the bulk of the volume.

An Introduction to the History of Western Europe, by JAMES H. ROBINSON. Ginn and Co., Boston, 1903. pp. 714.

This valuable and convenient book covers a period from the barbarians' invasion of Europe to the present time. It is illustrated by many cuts and frequent maps, with convenient marginal notations and an adequate index. It is a work sure of a career as a text and reference book in high schools and colleges.

The Negro Artisan. A social study made under the direction of Atlanta University by the Seventh Atlanta Conference. Atlanta University Press, Atlanta, Ga., 1902. pp. 192. Price, fifty cents.

We have here another installment of the very valuable collection of facts which this institution is making. They are the best guide we have for knowledge of all the important questions and, we may add, for philanthropists, who desire to put money where it will do the most good. This study is one of the very best.

Studies in the History of Educational Opinion from the Renaissance, by S. S. LAURIE. The Macmillan Co., New York, 1903. pp. 261. Price, $1.50.

Here we have sixteen interesting and lucid chapters, as is the method of this author, discussing the renaissance, universities, Elyot, Rabelais, Ascham, the Jesuits, Montaigne, Bacon, Comenius and Spencer, but with far the largest amount of space given to Locke.

Report of the Librarian of Congress for the Fiscal Year Ending June 30, 1901. The same for 1902. Govt. Print, Washington.

Every reader will be profoundly interested and grateful for the lucid and copiously illustrated account of the various departments and methods of work in the great national library, which is here presented.

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Dictionary of the French and English Languages, by W. JAMES and A. MOLÉ. Completely rewritten and greatly enlarged by Louis Tolhausen and George Payn. The Macmillan Co., New York, 1903. pp. 663 and 564. Price, $1.50.

Perhaps the most remarkable thing about this very attractive, convenient, and comprehensive work is its low price.

Les Études sur la Psychologie de l'Enfant en Amérique, par F. L. VAN BECELAERE. Revue Thomiste, Jan., Feb., 1903. pp. 702-716.

The author devotes this article to the child study work of the editor of this journal.

Pestalozzi and the Foundation of the Modern Elementary School, by A. PINLOCHE. Charles Scribner's Sons, New York, 1901. pp. 306.

We are glad to have in this concise form a clear picture of Pestalozzi's personality, his work, and influence. The work seems to be well done.

Spelling in the Elementary School: An Experimental and Statistical Investigation, by OLIVER P. CORNMAN. Ginn and Co., Boston, 1902. pp. 98.

Introductory Course of Nature Study, by PATRICK GEDDES. (Six lectures with afternoon excursions.) Univ. Press, Cambridge.

A Naturalist's Society and its Work, by Professor Geddes. Reprinted from the Scottish Geographical Magazine for February and March, 1902.

History for Graded and District Schools, by ELLWOOD W. KEMP. Ginn and Co., Boston, 1903. pp. 537.

The effort here is to reach children from six to sixteen and to develop in their minds the idea of the unity of history. Only a frame work is given. Each chapter ends with a bibliography.

Essays on the Study of Poetry and a Guide to English Literature, by MATTHEW ARNOLD. The Macmillan Co., New York, 1903. pp. 121. Price, 75 cents.

Civilization and Savagery, by G. STANLEY HALL. Proceedings of the Massachusetts Historical Society, January, February, March, 1903. pp. 4-13.

An attempt to suggest a new race pedagogy.

Arithmetic for High Schools, Academies, and Normal Schools, by OSCAR L. KELSO. The Macmillan Co., New York, 1903. pp. 274.

High-Grade Men In College and Out, by EDWIN G. DEXTER. Reprinted from The Popular Science Monthly, March, 1903.

Psychologie de l'Éducation, par GUSTAVE LE BON. E. Flammarion, Paris, 1902. pp. 304.

Elements of Physics, by ERNEST J. ANDREWS and H. N. HOWLAND. With a manual of experiments. pp. 53. The Macmillan Co., New York, 1903. pp. 386. Price, $1.10.

De la nature des courants électriques du nerf. Les excitants et les poisons du nerf, par N. E. WEDENSKY. (Archives de Pflüger. Bd. 82.)

The Dangers and the Uses of the Lecture, by FREDERICK HAVEN PRATT. Reprinted from the Educational Review, December, 1902.

Quarterly Bibliography of Books Reviewed in Leading American Periodicals. Cumulative. January, June, 1902. Index Publishing Co., Bloomington, Ind., Vol. I, No. 2. pp. 100.

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